

=> FILE REG

FILE 'REGISTRY' ENTERED AT 12:12:27 ON 09 AUG 2004  
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STRUCTURE FILE UPDATES: 8 AUG 2004 HIGHEST RN 724421-42-5  
DICTIONARY FILE UPDATES: 8 AUG 2004 HIGHEST RN 724421-42-5

TSCA INFORMATION NOW CURRENT THROUGH MAY 21, 2004

Please note that search-term pricing does apply when  
conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more  
information enter HELP PROP at an arrow prompt in the file or refer  
to the file summary sheet on the web at:  
<http://www.cas.org/ONLINE/DBSS/registryss.html>

=> FILE HCAPLUS

FILE 'HCAPLUS' ENTERED AT 12:12:31 ON 09 AUG 2004  
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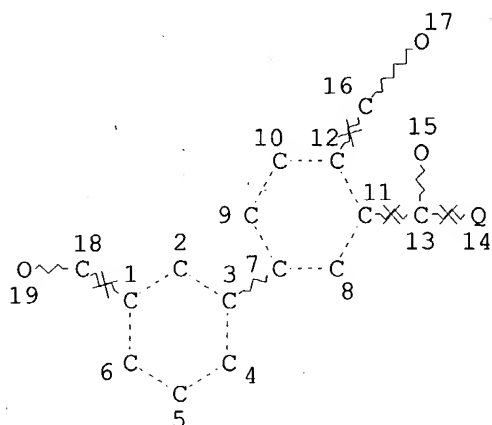
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FILE COVERS 1907 - 9 Aug 2004 VOL 141 ISS 7  
FILE LAST UPDATED: 8 Aug 2004 (20040808/ED)

This file contains CAS Registry Numbers for easy and accurate  
substance identification.

=> D QUE

L2	SCR 2043
L23	STR



*structure 1*

*4,839 polymers  
from this query*

NODE ATTRIBUTES:

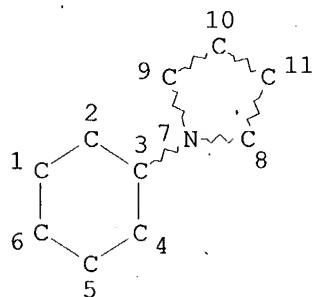
NSPEC IS RC AT 13  
NSPEC IS RC AT 14  
NSPEC IS RC AT 16  
NSPEC IS RC AT 18  
DEFAULT MLEVEL IS ATOM  
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED  
NUMBER OF NODES IS 19

STEREO ATTRIBUTES: NONE

L26 4839 SEA FILE=REGISTRY SSS FUL L23 AND L2  
L28 STR



*structure 2*

*Subset search of the above  
polymer  
← with*

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM  
DEFAULT ECLEVEL IS LIMITED

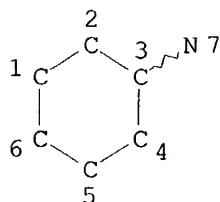
GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED  
NUMBER OF NODES IS 11

STEREO ATTRIBUTES: NONE

L29 STR

*or*



*structure 3*

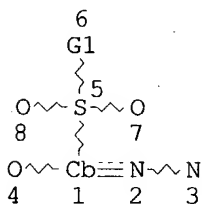
NODE ATTRIBUTES:  
DEFAULT MLEVEL IS ATOM  
DEFAULT ECLEVEL IS LIMITED

*100 polymers found*

GRAPH ATTRIBUTES:  
RING(S) ARE ISOLATED OR EMBEDDED  
NUMBER OF NODES IS 7

STEREO ATTRIBUTES: NONE

L31 100 SEA FILE=REGISTRY SUB=L26 SSS FUL L28 OR L29  
L33 65 SEA FILE=HCAPLUS ABB=ON L31  
L35 54 SEA FILE=HCAPLUS ABB=ON L33(L) (POF OR SPN OR IMF OR PREP)/RL  
L36 9 SEA FILE=HCAPLUS ABB=ON L35 AND PHOTSENSITI?  
L38 21 SEA FILE=HCAPLUS ABB=ON L35 AND COMPOSITION?  
L39 2 SEA FILE=HCAPLUS ABB=ON L35 AND ?AZIDE?  
L46 STR



*photosensitizer per claims*

*4,263 structures*

VAR G1=N/O  
NODE ATTRIBUTES:  
CONNECT IS E1 RC AT 4  
DEFAULT MLEVEL IS ATOM  
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:  
RING(S) ARE ISOLATED OR EMBEDDED  
NUMBER OF NODES IS 8

STEREO ATTRIBUTES: NONE

L48 4263 SEA FILE=REGISTRY SSS FUL L46  
L49 3578 SEA FILE=HCAPLUS ABB=ON L48  
L51 1 SEA FILE=HCAPLUS ABB=ON L49 AND L33  
L52 21 SEA FILE=HCAPLUS ABB=ON L36 OR L38 OR L39 OR L51

*only 1 CA reference with the resins*

=> D L52 ALL 1-21 HITSTR

L52 ANSWER 1 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN  
AN 2003:809483 HCAPLUS  
DN 139:308301  
ED Entered STN: 15 Oct 2003  
TI Polyimide solution

IN Kamimura, Seiji; Honda, Yuki; Suzuki, Yukio; Ito, Yuzo; Asano, Kenji  
 PA Hitachi Cable, Ltd., Japan  
 SO Jpn. Kokai Tokkyo Koho, 4 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 IC ICM C08L079-08  
 ICS C08K005-3415; C09D179-08  
 CC 37-2 (Plastics Manufacture and Processing)  
 Section cross-reference(s): 42  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2003292779	A2	20031015	JP 2002-98551	20020401
PRAI	JP 2002-98551		20020401		

## CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 2003292779	ICM	C08L079-08
	ICS	C08K005-3415; C09D179-08

AB Polyimide **composition** with good retention and voltage stability is obtained by dissolving polyimide with Mw of 50,000-150,000, which is prepared by polymerizing of acid dianhydride and aromatic diamine in the presence of

lactone catalyst, in organic solvent containing >40 weight%

N-vinyl-2-pyrrolidone at

a concentration of 1-10 weight%, and the solution has a viscosity of 10-100 mPa.s.

Thus, bicyclo(2,2,2)oct-7-ene-2,3,5,6-tetracarboxylic acid dianhydride and diaminobenzoic acid were polymerized in the presence of  $\gamma$ -caprolactone and pyridine in N-Me pyrrolidinone (NMP) and toluene solvent, followed by continue polymerizing with 3,3',4,4'-biphenyltetracarboxylic acid dianhydride and 3,3'-dimethyl-4,4'-diamino-dicyclohexylmethane at 170° for 3.5 h to receive a soluble polyimide that can be dissolved in a mixture solvent of NMP and N-Vinyl-2-pyrrolidone at a ratio of 6:4.

ST- bicyclooctene tetracarboxylic biphenyltetracarboxylic acid dianhydride diaminobenzoic dimethyldiaminodicyclohexylmethane polyimide soln; caprolactone pyridine methyl ethyl pyrrolidone polyimide soln

IT Polyimides, preparation

RL: IMF (Industrial manufacture); POF (Polymer in formulation); PREP (Preparation); USES (Uses)  
 (polyimide solution)

IT 110-86-1, Pyridine, uses 695-06-7,  $\gamma$ -Caprolactone  
 RL: CAT (Catalyst use); USES (Uses)  
 (polyimide solution)

IT 610317-02-7P

RL: IMF (Industrial manufacture); POF (Polymer in formulation); PREP (Preparation); USES (Uses)  
 (polyimide solution)

IT 88-12-0, N-Vinyl-2-pyrrolidone, uses 872-50-4, NMP, uses  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (solvent; polyimide solution)

IT 610317-02-7P

RL: IMF (Industrial manufacture); POF (Polymer in formulation); PREP (Preparation); USES (Uses)  
 (polyimide solution)

RN 610317-02-7 HCAPLUS

CN Benzoic acid, diamino-, polymer with [5,5'-biisobenzofuran]-1,1',3,3'-tetrone, 3a,4,4a,7a,8,8a-hexahydro-4,8-etheno-1H,3H-benzo[1,2-c:4,5-



c']difuran-1,3,5,7-tetrone and 4,4'-methylenebis[2-methylcyclohexanamine]  
(9CI) (CA INDEX NAME)

CM 1

CRN 27576-04-1

CMF C7 H8 N2 O2

CCI IDS



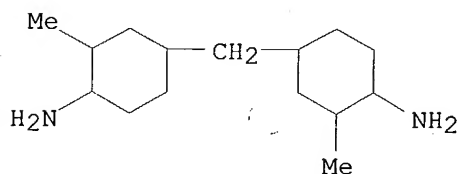
2 [ D1-NH<sub>2</sub> ]

D1-CO<sub>2</sub>H

CM 2

CRN 6864-37-5

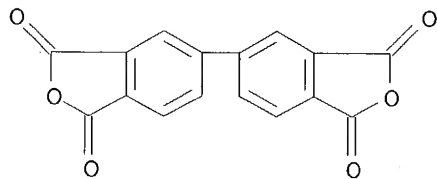
CMF C15 H30 N2



CM 3

CRN 2420-87-3

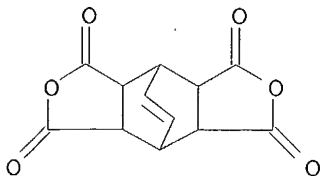
CMF C16 H6 O6



CM 4

CRN 1719-83-1

CMF C12 H8 O6



L52 ANSWER 2 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN  
 AN 2003:644506 HCAPLUS  
 DN 139:188403  
 ED Entered STN: 19 Aug 2003  
 TI **Photosensitive** polyimide precursors, their resin compositions, color filters, active-matrix LCD substrates, and LCD therewith  
 IN Nishio, Akitaka; Hayashi, Shinji; Sega, Shunsuke; Ito, Takeshi; Nakao, Junichi; Inukai, Tadashi  
 PA Toyobo Co., Ltd., Japan; Dai Nippon Printing Co., Ltd.  
 SO Jpn. Kokai Tokkyo Koho, 22 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 IC ICM C08G073-10  
 ICS C08F290-14; G02B005-20; G03F007-027  
 CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
 Section cross-reference(s): 38, 73

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2003231752	A2	20030819	JP 2002-34721	20020212
PRAI	JP 2002-34721		20020212		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 2003231752	ICM	C08G073-10
	ICS	C08F290-14; G02B005-20; G03F007-027

AB Claimed precursors, having acid value of 25-100 mg-KOH/g, are adducts of radically polymerizable monoglycidyl isocyanurates (or aliphatic epoxy compds.) and polyamic acids bearing COR<sub>1</sub>(CO<sub>2</sub>H)<sub>n</sub>CONHR<sub>2</sub>NH (R<sub>1</sub> = ≥2-C-bearing tri- or tetravalent organic group; R<sub>2</sub> = ≥2-C-bearing bivalent organic group; n = 1, 2). Resin compns. containing the precursors, monomers containing 2 or more radically polymerizable groups, and photopolymn. initiators are also claimed.

ST LCD color filter photoimaging polyimide precursor; diallylglycidyl isocyanurate esterified polyamic acid photoimaging material; hardness chem resistance color filter polyimide; epoxycyclohexyl methacrylate reacted polyamic acid photoimaging

IT Polyimides, preparation  
 RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (acrylic, polyisocyanurate-; **photosensitive** polyimide precursors for color filters of LCD with superior hardness and heat and chemical resistance)

IT Liquid crystal displays

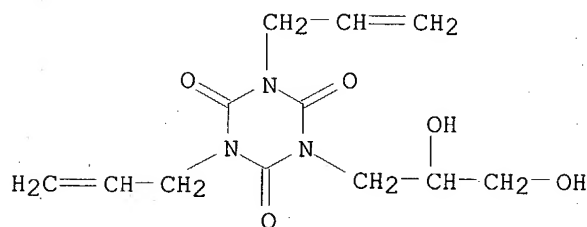
- (color, active-matrix; **photosensitive** polyimide precursors for color filters of LCD with superior hardness and heat and chemical resistance)
- IT Photoimaging materials  
(photopolymerizable; **photosensitive** polyimide precursors for color filters of LCD with superior hardness and heat and chemical resistance)
- IT Optical filters  
(**photosensitive** polyimide precursors for color filters of LCD with superior hardness and heat and chemical resistance)
- IT Polyamic acids  
RL: IMF (Industrial manufacture); RCT (Reactant); TEM (Technical or engineered material use); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)  
(**photosensitive** polyimide precursors for color filters of LCD with superior hardness and heat and chemical resistance)
- IT 7189-80-2 579473-16-8  
RL: CAT (Catalyst use); TEM (Technical or engineered material use); USES (Uses)  
(photopolymn. initiators; **photosensitive** polyimide precursors for color filters of LCD with superior hardness and heat and chemical resistance)
- IT 579486-27-4P, Aronix M 305-isophorone diisocyanate-pyromellitic dianhydride copolymer diallylmonoglycidyl isocyanurate ester 579486-28-5P, Aronix M 305-isophorone diisocyanate-pyromellitic dianhydride copolymer 3,4-epoxycyclohexyl methacrylate ester 579486-30-9P, Aronix M 305-3,3',4,4'-biphenyltetracarboxylic dianhydride-isophorone diisocyanate copolymer ester with diallylmonoglycidyl isocyanurate 579486-31-0P, Aronix M 305-3,3',4,4'-biphenyltetracarboxylic dianhydride-isophorone diisocyanate copolymer ester with 3,4-epoxycyclohexyl methacrylate  
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(**photosensitive** polyimide precursors for color filters of LCD with superior hardness and heat and chemical resistance)
- IT 579486-22-9P, Isophorone diisocyanate-pyromellitic dianhydride copolymer diallylmonoglycidyl isocyanurate ester 579486-23-0P, Isophorone diisocyanate-pyromellitic dianhydride copolymer 3,4-epoxycyclohexyl methacrylate ester 579486-24-1P, 3,3',4,4'-Biphenyltetracarboxylic dianhydride-isophorone diisocyanate copolymer ester with diallylmonoglycidyl isocyanurate 579486-26-3P, 3,3',4,4'-Biphenyltetracarboxylic dianhydride-isophorone diisocyanate copolymer ester with 3,4-epoxycyclohexyl methacrylate  
RL: IMF (Industrial manufacture); RCT (Reactant); TEM (Technical or engineered material use); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)  
(**photosensitive** polyimide precursors for color filters of LCD with superior hardness and heat and chemical resistance)
- IT 579486-30-9P, Aronix M 305-3,3',4,4'-biphenyltetracarboxylic dianhydride-isophorone diisocyanate copolymer ester with diallylmonoglycidyl isocyanurate 579486-31-0P, Aronix M 305-3,3',4,4'-biphenyltetracarboxylic dianhydride-isophorone diisocyanate copolymer ester with 3,4-epoxycyclohexyl methacrylate  
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(**photosensitive** polyimide precursors for color filters of LCD with superior hardness and heat and chemical resistance)

RN 579486-30-9 HCAPLUS  
 CN 2-Propenoic acid, 2-(hydroxymethyl)-2-[[[(1-oxo-2-propenyl)oxy]methyl]-1,3-propanediyl ester, polymer with [5,5'-biisobenzofuran]-1,1',3,3'-tetrone and 5-isocyanato-1-(isocyanatomethyl)-1,3,3-trimethylcyclohexane, 2-hydroxy-3-(tetrahydro-2,4,6-trioxo-3,5-di-2-propenyl-1,3,5-triazin-1(2H)-yl)propyl ester (9CI) (CA INDEX NAME)

CM 1

CRN 13915-47-4

CMF C12 H17 N3 O5



CM 2

CRN 579486-29-6

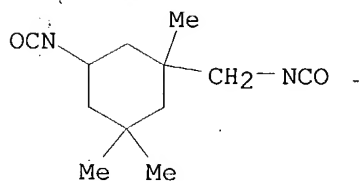
CMF (C16 H6 O6 . C14 H18 O7 . C12 H18 N2 O2)x

CCI PMS

CM 3

CRN 4098-71-9

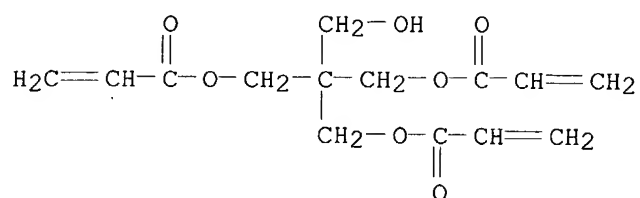
CMF C12 H18 N2 O2



CM 4

CRN 3524-68-3

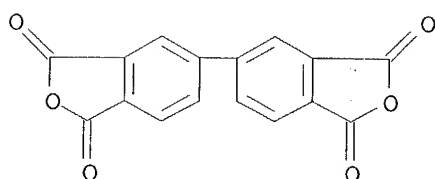
CMF C14 H18 O7



CM 5

CRN 2420-87-3

CMF C16 H6 O6



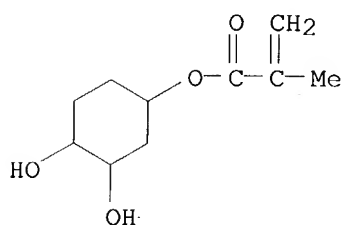
RN 579486-31-0 HCAPLUS

CN 2-Propenoic acid, 2-(hydroxymethyl)-2-[[ (1-oxo-2-propenyl)oxy]methyl]-1,3-propanediyl ester, polymer with [5,5'-biisobenzofuran]-1,1',3,3'-tetrone and 5-isocyanato-1-(isocyanatomethyl)-1,3,3-trimethylcyclohexane, 2-hydroxy-4 (or 5)-[(2-methyl-1-oxo-2-propenyl)oxy]cyclohexyl ester (9CI)  
(CA INDEX NAME)

CM 1

CRN 538357-59-4

CMF C10 H16 O4



CM 2

CRN 579486-29-6

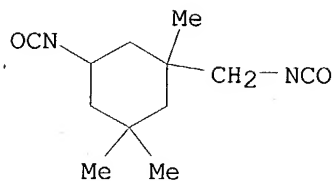
$$\text{CMF} \quad (\text{C16 H6 O6} \cdot \text{C14 H18 O7} \cdot \text{C12 H18 N2 O2})_x$$

CCI      PMS

CM 3

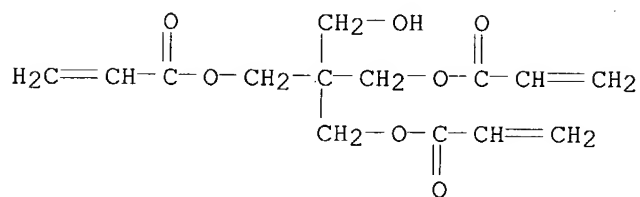
CRN 4098-71-9

CMF C12 H18 N2 O2



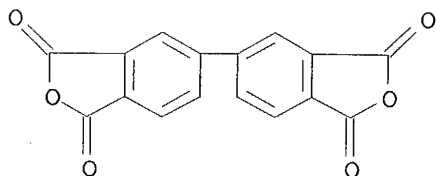
CM 4

CRN 3524-68-3  
CMF C14 H18 O7



CM 5

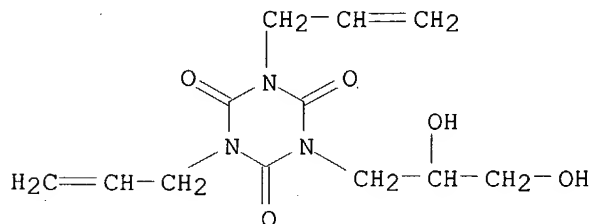
CRN 2420-87-3  
CMF C16 H6 O6



IT 579486-24-1P, 3,3',4,4'-Biphenyltetracarboxylic dianhydride-isophorone diisocyanate copolymer ester with diallylmonoglycidyl isocyanurate 579486-26-3P, 3,3',4,4'-Biphenyltetracarboxylic dianhydride-isophorone diisocyanate copolymer ester with 3,4-epoxycyclohexyl methacrylate  
RL: IMF (Industrial manufacture); RCT (Reactant); TEM (Technical or engineered material use); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)  
(photosensitive polyimide precursors for color filters of LCD with superior hardness and heat and chemical resistance)  
RN 579486-24-1 HCAPLUS  
CN [5,5'-Biisobenzofuran]-1,1',3,3'-tetrone, polymer with 5-isocyanato-1-(isocyanatomethyl)-1,3,3-trimethylcyclohexane, 2-hydroxy-3-(tetrahydro-2,4,6-trioxo-3,5-di-2-propenyl-1,3,5-triazin-1(2H)-yl)propyl ester (9CI) (CA INDEX NAME)

CM 1

CRN 13915-47-4  
CMF C12 H17 N3 O5

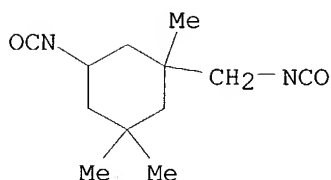


CM 2

CRN 169597-69-7  
CMF (C16 H6 O6 . C12 H18 N2 O2)x  
CCI PMS

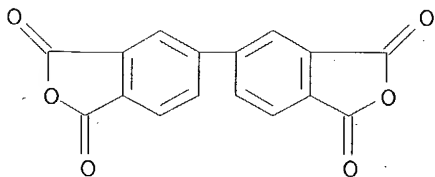
CM 3

CRN 4098-71-9  
CMF C12 H18 N2 O2



CM 4

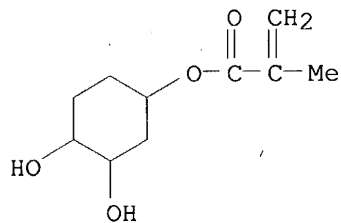
CRN 2420-87-3  
CMF C16 H6 O6



RN 579486-26-3 HCAPLUS  
CN [5,5'-Biisobenzofuran]-1,1',3,3'-tetrone, polymer with  
5-isocyanato-1-(isocyanatomethyl)-1,3,3-trimethylcyclohexane,  
2-hydroxy-4(or 5)-[(2-methyl-1-oxo-2-propenyl)oxy]cyclohexyl ester (9CI)  
(CA INDEX NAME)

CM 1

CRN 538357-59-4  
CMF C10 H16 O4

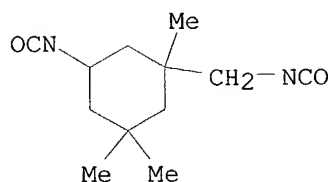


CM 2

CRN 169597-69-7  
CMF (C16 H6 O6 . C12 H18 N2 O2)x  
CCI PMS

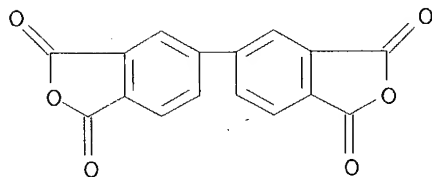
CM 3

CRN 4098-71-9  
CMF C12 H18 N2 O2



CM 4

CRN 2420-87-3  
CMF C16 H6 O6



L52 ANSWER 3 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN  
AN 2003:571062 HCAPLUS  
DN 139:134275  
ED Entered STN: 25 Jul 2003  
TI Solvent-soluble block copolyimide **compositions** without whiteness  
in air and process thereof

KATHLEEN FULLER EIC 1700 REMSEN 4B28 571/272-2505



IN Jin, Xingzhou; Ishii, Hiroyuki; Miyamura, Masataka; Itatani, Hiroshi;  
Hori, Shinichiro; Taniguchi, Akihito  
PA PI R & D Co., Ltd., Japan  
SO PCT Int. Appl., 42 pp.  
CODEN: PIXXD2  
DT Patent  
LA Japanese  
IC ICM C08L079-08  
ICS C08G073-10; G03F007-037  
CC 37-3 (Plastics Manufacture and Processing)  
Section cross-reference(s): 42, 74

FAN.CNT 1.

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003060010	A1	20030724	WO 2003-JP252	20030115
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
	RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
PRAI	JP 2002-5413	A	20020115		
	JP 2002-5414	A	20020115		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2003060010	ICM	C08L079-08
	ICS	C08G073-10; G03F007-037

AB The present invention relates to (i) polyimide compns. comprise polyimides obtained by heating a tetracarboxylic dianhydride and a diamine in  $\geq 1$  solvent selected from ketones, ethers, and esters in the presence of a catalyst comprising a lactone and a base, (ii) pos. type block polyimide compns. containing photo-acid generators, (iii) and inks. Thus, 4.41 g 3,3',4,4'-biphenyltetracarboxylic dianhydride and 12.32 g 2,2-bis[4-(4-aminophenoxy)phenyl]propane were polymerized in the presence of 0.15 g  $\gamma$ -valerolactone and 2.4 g pyridine in 64.75 g anisole, 3,3',4,4'-biphenyltetracarboxylic dianhydride 8.83, By 16-853U silicone diamine 13.80, and anisole 150 g were added therein to give a polyimide with Mn 9225, Mw 21437, Mz 37515, and polydispersity 2.32.

ST solvent soluble block copolyimide prepn whiteness; biphenyltetracarboxylic dianhydride bisaminophenoxyphenylpropane silicone diamine block copolymer prepn

IT Polyimides, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(block; preparation of solvent-soluble block copolyimide compns. without whiteness)

IT Polyimides, preparation  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(di-Me siloxane-polyether-, block; preparation of solvent-soluble block copolyimide compns. without whiteness)

IT Polyethers, preparation  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(di-Me siloxane-polyimide-, block; preparation of solvent-soluble block copolyimide compns. without whiteness)

IT Polysiloxanes, preparation  
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (di-Me, polyether-polyimide-, block; preparation of solvent-soluble block copolyimide compns. without whiteness)

IT Polyimides, preparation  
 RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
 (polyether-, block; preparation of solvent-soluble block copolyimide compns. without whiteness)

IT Polyimides, preparation  
 RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
 (polyether-, fluorine-containing, block; preparation of solvent-soluble block copolyimide compns. without whiteness)

IT Fluoropolymers, preparation  
 RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
 (polyether-polyimide-, block; preparation of solvent-soluble block copolyimide compns. without whiteness)

IT Polysulfones, preparation  
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (polyether-polyimide-, block; preparation of solvent-soluble block copolyimide compns. without whiteness)

IT Polysiloxanes, preparation  
 RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
 (polyether-polyimide-, fluorine-containing, block; preparation of solvent-soluble block copolyimide compns. without whiteness)

IT Polysulfones, preparation  
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (polyether-polyimide-polyketone-, block; preparation of solvent-soluble block copolyimide compns. without whiteness)

IT Fluoropolymers, preparation  
 RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
 (polyether-polyimide-polysiloxane-, block; preparation of solvent-soluble block copolyimide compns. without whiteness)

IT Polyketones

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (polyether-polyimide-polysulfone-, block; preparation of solvent-soluble block copolyimide compns. without whiteness)

IT Polyimides, preparation  
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (polyether-polyketone-polysulfone-, block; preparation of solvent-soluble block copolyimide compns. without whiteness)

IT Polyimides, preparation  
 RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
 (polyether-polysiloxane-, fluorine-containing, block; preparation of solvent-soluble block copolyimide compns. without whiteness)

IT Polyimides, preparation  
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (polyether-polysulfone-, block; preparation of solvent-soluble block copolyimide compns. without whiteness)

IT Polyethers, preparation  
 Polysulfones, preparation  
 RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
 (polyimide-, block; preparation of solvent-soluble block copolyimide compns. without whiteness)

IT Polyethers, preparation  
 RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
 (polyimide-, fluorine-containing, block; preparation of solvent-soluble block copolyimide compns. without whiteness)

IT Polysiloxanes, preparation  
 RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
 (polyimide-polyketone-polysulfone-, bloc; preparation of solvent-soluble block copolyimide compns. without whiteness)

IT Polyethers, preparation  
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (polyimide-polyketone-polysulfone-, block; preparation of solvent-soluble block copolyimide compns. without whiteness)

IT Polysulfones, preparation  
 RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
 (polyimide-polyketone-siloxane-, block; preparation of solvent-soluble block

copolyimide compns. without whiteness)

IT Polyethers, preparation  
 RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
 (polyimide-polysiloxane-, fluorine-containing, block; preparation of solvent-soluble block copolyimide compns. without whiteness)

IT Polyethers, preparation  
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (polyimide-polysulfone-, block; preparation of solvent-soluble block copolyimide compns. without whiteness)

IT Polyketones  
 RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
 (polyimide-polysulfone-siloxane-, block; preparation of solvent-soluble block copolyimide compns. without whiteness)

IT Polyimides, preparation  
 RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
 (polyketone-polysulfone-siloxane-, block; preparation of solvent-soluble block copolyimide compns. without whiteness)

IT Polyimides, preparation  
 RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
 (polysulfone-, block; preparation of solvent-soluble block copolyimide compns. without whiteness)

IT Positive photoresists  
 (preparation of solvent-soluble block copolyimide compns. without whiteness)

IT 566190-14-5P 566190-15-6P 566190-16-7P 566190-17-8P 566190-18-9P  
 566190-19-0P 566190-20-3P 566190-21-4P 566190-22-5P 566190-23-6P  
 566190-24-7P 566190-25-8P 566190-26-9P 566190-27-0P 566190-28-1P  
 RL: CPS (Chemical process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)  
 (preparation of solvent-soluble block copolyimide compns. without whiteness)

IT 206853-74-9P 514625-63-9P 566190-11-2P 566190-12-3P  
 566190-13-4P  
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (preparation of solvent-soluble block copolyimide compns. without whiteness)

RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Nippon Maktron Ltd; JP 200034348 A 1999  
 (2) Nippon Maktron Ltd; US 6365324 B 1999 HCAPLUS  
 (3) Nippon Maktron Ltd; EP 957126 A1 1999 HCAPLUS  
 (4) Nippon Steel Chemical Co Ltd; JP 04-108880 A 1992 HCAPLUS  
 (5) Pi R&d Co Ltd; JP 11-202488 A 1999 HCAPLUS

- (6) Pi R&d Co Ltd; WO 0041884 A1 2000 HCAPLUS
- (7) Pi R&d Co Ltd; EP 1145845 A1 2000 HCAPLUS
- (8) Pi R&d Co Ltd; JP 2000202970 A 2000 HCAPLUS
- (9) Tomoegawa Paper Co Ltd; JP 09-040777 A 1997 HCAPLUS

IT 566190-11-2P 566190-13-4P

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(preparation of solvent-soluble block copolyimide comps. without whiteness)

RN 566190-11-2 HCAPLUS

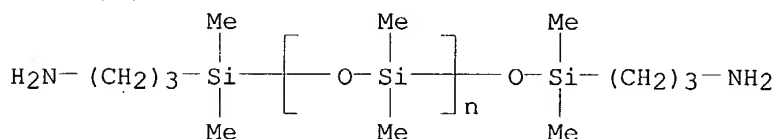
CN 4,8-Etheno-1H,3H-benzo[1,2-c:4,5-c']difuran-1,3,5,7-tetrone, 3a,4,4a,7a,8,8a-hexahydro-, polymer with  $\alpha$ -[(3-aminopropyl)dimethylsilyl]- $\omega$ -[[[(3-aminopropyl)dimethylsilyl]oxy]poly[oxy(dimethylsilylene)], 5-amino-1,3,3-trimethylcyclohexanemethanamine and [5,5'-biisobenzofuran]-1,1',3,3'-tetrone, block (9CI) (CA INDEX NAME)

CM 1

CRN 97917-34-5

CMF (C2 H6 O Si)<sub>n</sub> C10 H28 N2 O Si2

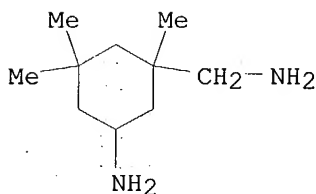
CCI PMS



CM 2

CRN 2855-13-2

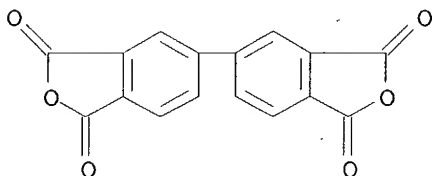
CMF C10 H22 N2



CM 3

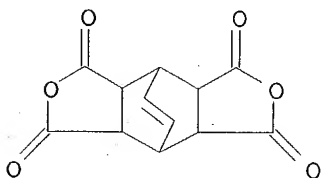
CRN 2420-87-3

CMF C16 H6 O6



CM 4

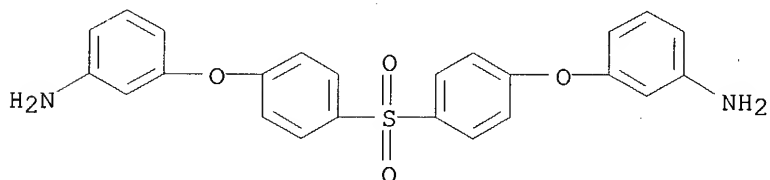
CRN 1719-83-1  
CMF C12 H8 O6



RN 566190-13-4 HCAPLUS  
CN 1H,3H-Benzo[1,2-c:4,5-c']difuran-1,3,5,7-tetrone, hexahydro-, polymer with 5-amino-1,3,3-trimethylcyclohexanemethanamine, [5,5'-biisobenzofuran]-1,1',3,3'-tetrone and 3,3'-[sulfonylbis(4,1-phenyleneoxy)]bis[benzenamine], block (9CI) (CA INDEX NAME)

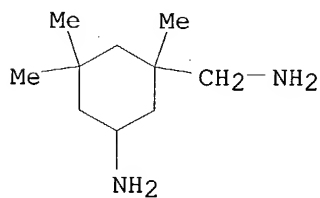
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CRN 30203-11-3  
CMF C24 H20 N2 O4 S



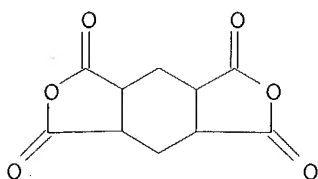
CM 2

CRN 2855-13-2  
CMF C10 H22 N2



CM 3

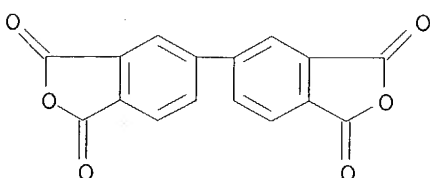
CRN 2754-41-8  
CMF C10 H8 O6



CM 4

CRN 2420-87-3

CMF C16 H6 O6



L52 ANSWER 4 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN  
 AN 2003:432726 HCAPLUS  
 DN 139:22999  
 ED Entered STN: 06 Jun 2003  
 TI Heat-resistant polyester **compositions** with reduced foreign matters, their biaxially stretched polyester films, and capacitors prepared therewith  
 IN Hosokawa, Hirofumi; Imanishi, Yasuyuki; Tsunekawa, Tetsuya  
 PA Toray Industries, Inc., Japan  
 SO Jpn. Kokai Tokkyo Koho, 14 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 IC ICM C08L067-00  
 ICS B29C055-12; C08J005-18; C08K005-1515; C08K005-29; C08K005-35; C08L079-08; G11B005-73; H01G004-18; B29K067-00; B29L007-00  
 CC 38-3 (Plastics Fabrication and Uses)  
 Section cross-reference(s): 76

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2003160718	A2	20030606	JP 2001-360844	20011127
PRAI	JP 2001-360844		20011127		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 2003160718	ICM	C08L067-00
	ICS	B29C055-12; C08J005-18; C08K005-1515; C08K005-29; C08K005-35; C08L079-08; G11B005-73; H01G004-18; B29K067-00; B29L007-00

AB The **composition**, showing terminal carboxyl content 1-45 equiv/106 g and total metal content 3-450 ppm, comprise (A) polyesters, (B) polyimides, and (C) terminal crosslinking agents. Thus, a **compn** . (terminal carboxyl content 30.6 equiv/106 g, total metal content 112

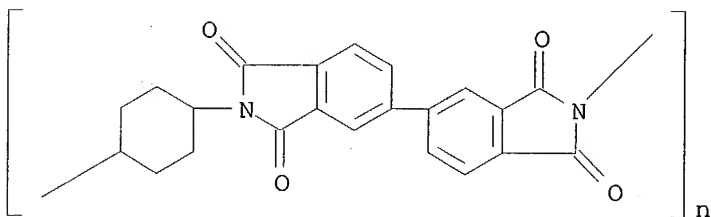
ppm) containing 80:20:0.1 PET, polyether-polyimide (Ultem 1010), and carbodiimide crosslinking agent prepared from IPDI, dibutylamine, and carbodiimidation catalysts was extruded, electrostatically fixed onto a drum, cooled, biaxially stretched to give a film with good heat moisture resistance.

- ST biaxial stretching polyester film capacitor; PET polyether polyimide crosslinking heat resistance film; carbodiimide terminal crosslinking agent IPDI butylamine
- IT Polyethers, uses  
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (Polycarbodiimide-polyester-polyimide-; heat-resistant polyester compns. with reduced foreign matters for biaxially stretched films)
- IT Heat-resistant materials  
 (films; heat-resistant polyester compns. with reduced foreign matters for biaxially stretched films)
- IT Capacitors  
 Crosslinking agents  
 Plastic films  
 (heat-resistant polyester compns. with reduced foreign matters for biaxially stretched films)
- IT Films  
 (heat-resistant; heat-resistant polyester compns. with reduced foreign matters for biaxially stretched films)
- IT Polyimides, uses  
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (polycarbodiimide-polyester-polyether-; heat-resistant polyester compns. with reduced foreign matters for biaxially stretched films)
- IT Polyesters, uses  
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (polycarbodiimide-polyether-polyimide-; heat-resistant polyester compns. with reduced foreign matters for biaxially stretched films)
- IT Polyimides, uses  
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (polyester-polyether-; heat-resistant polyester compns. with reduced foreign matters for biaxially stretched films)
- IT Polycarbodiimides  
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (polyester-polyether-polyimide-; heat-resistant polyester compns. with reduced foreign matters for biaxially stretched films)
- IT Polyethers, uses  
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (polyester-polyimide-; heat-resistant polyester compns. with reduced foreign matters for biaxially stretched films)
- IT Polyesters, uses  
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (polyether-polyimide-; heat-resistant polyester compns. with reduced foreign matters for biaxially stretched films)
- IT Polyesters, uses  
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (polymers with carbodiimides and polyimides; heat-resistant polyester compns. with reduced foreign matters for biaxially stretched films)



- IT Carbodiimides  
Polycarbodiimides  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(terminal crosslinking agents; heat-resistant polyester compns. with reduced foreign matters for biaxially stretched films)
- IT 25230-87-9DP, polymers with carbodiimides and polyimides 61128-46-9DP, polymers with carbodiimides and polyesters  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(assumed monomers; heat-resistant polyester compns. with reduced foreign matters for biaxially stretched films)
- IT 537658-54-1P 537658-55-2P 537658-56-3P 537706-69-7P  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(comprised of actual and assumed monomers; heat-resistant polyester compns. with reduced foreign matters for biaxially stretched films)
- IT 537658-53-0P  
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(crosslinking agent; heat-resistant polyester compns. with reduced foreign matters for biaxially stretched films)
- IT 7426-75-7, BOX 220 25068-38-6, Epikote 828 40861-23-2, PES 10  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(crosslinking agent; heat-resistant polyester compns. with reduced foreign matters for biaxially stretched films)
- IT 1309-64-4, Antimony trioxide, uses 1310-53-8, Germanium dioxide, uses  
RL: CAT (Catalyst use); MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)  
(heat-resistant polyester compns. with reduced foreign matters for biaxially stretched films)
- IT 111-92-2DP, Dibutylamine, reaction products with IPDI, carbodiimidated, polymers with polyesters and polyimides 4098-71-9DP, IPDI, reaction products with dibutylamine, carbodiimidated, polymers with polyesters and polyimides 24968-11-4DP, Poly(ethylene-2,6-naphthalate), polymers with carbodiimides and polyimides 25038-59-9DP, Poly(ethylene terephthalate), polymers with carbodiimides and polyimides 61128-24-3DP, Ultem 1010, polymers with carbodiimides and polyesters 151367-06-5DP, polymers with carbodiimides and polyesters 151372-67-7DP, Biphenyltetracarboxylic acid dianhydride-trans-1, 4-diaminocyclohexane copolymer, polymers with carbodiimides and polyesters 169458-34-8DP, IPDI-pyromellitic dianhydride copolymer, polymers with carbodiimides and polyesters  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(heat-resistant polyester compns. with reduced foreign matters for biaxially stretched films)
- IT 142-72-3, Magnesium acetate  
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)  
(heat-resistant polyester compns. with reduced foreign matters for biaxially stretched films)
- IT 151367-06-5DP, polymers with carbodiimides and polyesters 151372-67-7DP, Biphenyltetracarboxylic acid dianhydride-trans-1, 4-diaminocyclohexane copolymer, polymers with carbodiimides and polyesters  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(heat-resistant polyester compns. with reduced foreign matters for biaxially stretched films)
- RN 151367-06-5 HCAPLUS

CN Poly[(1,1',3,3'-tetrahydro-1,1',3,3'-tetraoxo[5,5'-bi-2H-isoindole]-2,2'-diyl)-trans-1,4-cyclohexanediyl] (9CI) (CA INDEX NAME)



RN 151372-67-7 HCAPLUS

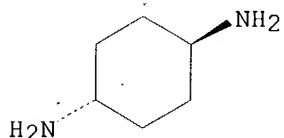
CN [5,5'-Biisobenzofuran]-1,1',3,3'-tetrone, polymer with trans-1,4-cyclohexanediamine (9CI) (CA INDEX NAME)

CM 1

CRN 2615-25-0

CMF C6 H14 N2

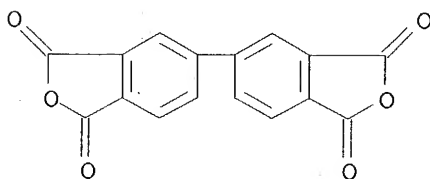
Relative stereochemistry.



CM 2

CRN 2420-87-3

CMF C16 H6 O6



L52 ANSWER 5 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 2003:352202 HCAPLUS

DN 138:339460

ED Entered STN: 08 May 2003

TI Polyester-polyimide **compositions** and their hollow moldings with good heat resistance, transparency, and UV shielding property

IN Higashioji, Takashi; Hosokawa, Hirofumi; Tsunekawa, Tetsuya

PA Toray Industries, Inc., Japan

SO Jpn. Kokai Tokkyo Koho, 14 pp.

CODEN: JKXXAF

DT Patent

LA Japanese  
IC ICM C08L067-00  
ICS B65D001-09; C08J005-00; C08L079-08  
CC 38-3 (Plastics Fabrication and Uses)  
Section cross-reference(s): 17, 37

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2003128892	A2	20030508	JP 2001-330496	20011029
PRAI	JP 2001-330496		20011029		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 2003128892	ICM	C08L067-00
	ICS	B65D001-09; C08J005-00; C08L079-08

AB The compns. have single Tg, content of amine end groups of  $\leq 5$  + 10-6 equivalent/g, and content of acetaldehyde of  $\leq 100$  ppm. The moldings are useful for food and beverage containers. Thus, 40% pellet containing 86:39 terephthalic acid-ethylene glycol copolymer 49.9, Ultem 1010 [2,2-bis[4-(3,4-dicarboxyphenoxy)phenyl]propane dianhydride-m-phenylenediamine copolymer] 49.9, and maleic anhydride 0.2% was mixed with 60% PET pellet and injection-molded at 180° to give a parison, which was blow-molded at 280° to give a bottle showing haze 2.2%, b value 2.2, UV light transmittance 15%, and shrinkage 1.8% after treatment with water at 80° for 30 min.

ST polyester polyimide bottle beverage heat resistance; maleimide terminated polyimide polyester hollow molding; PET carboxyphenoxyphenylpropane dianhydride phenylenediamine copolymer bottle; UV shield polyester polyimide hollow molding; transparency food container polyester polyimide

IT Bottles  
(beverage; polyester-polyimide compns. for hollow moldings with good heat resistance, transparency, and UV shielding property)

IT Containers  
(food; polyester-polyimide compns. for hollow moldings with good heat resistance, transparency, and UV shielding property)

IT Containers  
(heat-resistant; polyester-polyimide compns. for hollow moldings with good heat resistance, transparency, and UV shielding property)

IT UV shields  
(polyester-polyimide compns. for hollow moldings with good heat resistance, transparency, and UV shielding property)

IT Polyesters, uses  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(polyester-polyimide compns. for hollow moldings with good heat resistance, transparency, and UV shielding property)

IT Polymer blends  
RL: TEM (Technical or engineered material use); USES (Uses)  
(polyester-polyimide compns. for hollow moldings with good heat resistance, transparency, and UV shielding property)

IT Polyimides, uses  
RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polyether-, maleimide-terminated; polyester-polyimide compns. for hollow moldings with good heat resistance, transparency, and UV shielding property)

IT Polyethers, uses  
RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(polyimide-, maleimide-terminated; polyester-polyimide compns. for hollow moldings with good heat resistance, transparency, and UV shielding property)

IT Containers  
(transparent; polyester-polyimide compns. for hollow moldings with good heat resistance, transparency, and UV shielding property)

IT 61128-46-9DP, maleimide-terminated  
RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(assumed monomers; polyester-polyimide compns. for hollow moldings with good heat resistance, transparency, and UV shielding property)

IT 108-31-6DP, Maleic anhydride, reaction products with polyimides  
25038-59-9P, Ethylene glycol-terephthalic acid copolymer, uses  
79670-39-6P **151372-67-7DP**, Biphenyltetracarboxylic acid dianhydride-trans-1,4-diaminocyclohexane copolymer, maleimide-terminated  
169458-34-8DP, Isophorone diisocyanate-pyromellitic anhydride copolymer, maleimide-terminated **517855-66-2P**  
RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polyester-polyimide compns. for hollow moldings with good heat resistance, transparency, and UV shielding property)

IT 9020-73-9, Poly(ethylene naphthalate) 24968-11-4, Poly(ethylene naphthalate)  
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)  
(polyester-polyimide compns. for hollow moldings with good heat resistance, transparency, and UV shielding property)

IT **151372-67-7DP**, Biphenyltetracarboxylic acid dianhydride-trans-1,4-diaminocyclohexane copolymer, maleimide-terminated **517855-66-2P**  
RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polyester-polyimide compns. for hollow moldings with good heat resistance, transparency, and UV shielding property)

RN 151372-67-7 HCAPLUS

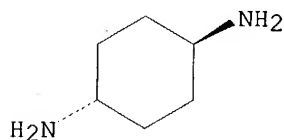
CN [5,5'-Biisobenzofuran]-1,1',3,3'-tetrone, polymer with trans-1,4-cyclohexanediamine (9CI) (CA INDEX NAME)

CM 1

CRN 2615-25-0

CMF C6 H14 N2

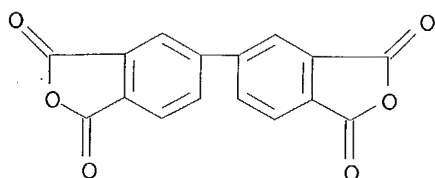
Relative stereochemistry.



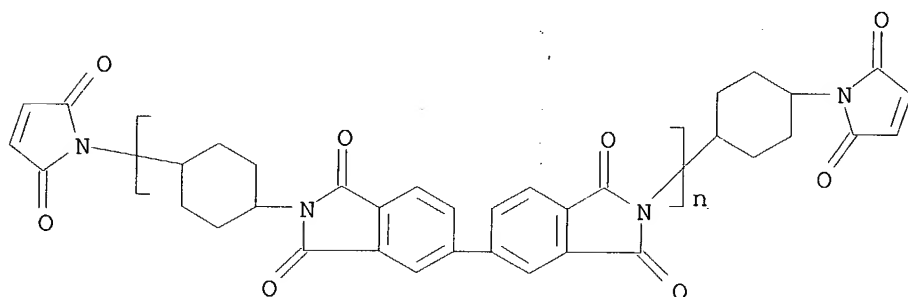
CM 2

CRN 2420-87-3

CMF C16 H6 O6



RN 517855-66-2 HCAPLUS  
 CN Poly[(1,1',3,3'-tetrahydro-1,1',3,3'-tetraoxo[5,5'-bi-2H-isoindole]-2,2'-diyl)-trans-1,4-cyclohexanediyl],  $\alpha$ -[trans-4-(2,5-dihydro-2,5-dioxo-1H-pyrrol-1-yl)cyclohexyl]- $\omega$ -(2,5-dihydro-2,5-dioxo-1H-pyrrol-1-yl)-(9CI) (CA INDEX NAME)



L52 ANSWER 6 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN  
 AN 2003:312144 HCAPLUS  
 DN 138:322092  
 ED Entered STN: 23 Apr 2003  
 TI Block copolyimide **compositions** soluble in ketone and/or ether solvents and their manufacture  
 IN Kim, Hang Goo; Ishii, Hiroyuki; Miyamura, Masataka; Itaya, Hiroshi  
 PA PI Gijitsu Kenkyusho K. K., Japan  
 SO Jpn. Kokai Tokkyo Koho, 7 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 IC ICM C08G073-10  
 CC 37-3 (Plastics Manufacture and Processing)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2003119285	A2	20030423	JP 2001-350832	20011012
PRAI	JP 2001-350832		20011012		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
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JP 2003119285	ICM	C08G073-10
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AB The comps. are manufactured by dehydration-condensation of tetracarboxylic acid dianhydrides and diamines dissolved in ketone and/or ether solvents in the solids content of the polyimides of  $\geq 10\%$  under heating in the presence of lactones and bases as catalysts. Thus, 4.41 g 3,4,3',4'-biphenyltetracarboxylic dianhydride (I) and 12.32 g 2,2-bis[4-(4-aminophenoxy)phenyl]propane were dehydrated in 64.75 g

- anisole containing 0.15 g  $\gamma$ -valerolactone and 2.4 g pyridine at 180° for 1 h and further treated with 8.83 g I and 13.80 g silicone oil (By 853U) to give a 15% solution of a polyimide showing Mn 9225, Mw 21,437, and z-average mol. weight 37,515.
- ST block polyimide silicone org solvent soluble; lactone pyridine catalyst  
block polyimide manuf
- IT Polymerization catalysts  
(lactones and bases; manufacture of ketone- and/or ether-soluble block copolyimides)
- IT Ethers, uses  
Ketones, uses  
RL: NUU (Other use, unclassified); USES (Uses)  
(manufacture of ketone- and/or ether-soluble block copolyimides)
- IT Polysiloxanes, preparation  
Polysulfones, preparation  
RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)  
(polyether-polyimide-, block; manufacture of ketone- and/or ether-soluble block copolyimides)
- IT Polysulfones, preparation  
RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)  
(polyether-polyimide-polyketone-, block; manufacture of ketone- and/or ether-soluble block copolyimides)
- IT Polyketones  
RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)  
(polyether-polyimide-polysulfone-, block; manufacture of ketone- and/or ether-soluble block copolyimides)
- IT Polyimides, preparation  
RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)  
(polyether-polyketone-polysulfone-, block; manufacture of ketone- and/or ether-soluble block copolyimides)
- IT Polyimides, preparation  
RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)  
(polyether-polysiloxane-, block; manufacture of ketone- and/or ether-soluble block copolyimides)
- IT Polyimides, preparation  
RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)  
(polyether-polysulfone-, block; manufacture of ketone- and/or ether-soluble block copolyimides)
- IT Polysiloxanes, preparation  
RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)  
(polyimide-, block; manufacture of ketone- and/or ether-soluble block copolyimides)
- IT Polyethers, preparation  
RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)  
(polyimide-polyketone-polysulfone-, block; manufacture of ketone- and/or ether-soluble block copolyimides)
- IT Polyethers, preparation  
RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)  
(polyimide-polysiloxane-, block; manufacture of ketone- and/or ether-soluble block copolyimides)
- IT Polyethers, preparation  
RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)  
(polyimide-polysulfone-, block; manufacture of ketone- and/or ether-soluble block copolyimides)
- IT Polyimides, preparation  
RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)  
(siloxane-, block; manufacture of ketone- and/or ether-soluble block copolyimides)

IT 2420-87-3DP, 3,4,3',4'-Biphenyltetracarboxylic dianhydride, reaction products with polyimide-siloxanes, silicones, diaminodiphenyl ether, and bis(aminophenoxy)benzene 2479-46-1DP, 1,3-Bis(4-aminophenoxy)benzene, reaction products with polyimide-siloxanes, silicones, biphenyltetracarboxylic dianhydride, and diaminodiphenyl ether 2657-87-6DP, 3,4'-Diaminodiphenyl ether, reaction products with polyimide-siloxanes, biphenyltetracarboxylic dianhydride, silicones, and bis(aminophenoxy)benzene 96926-37-3DP, 3,3',4,4'-Biphenyltetracarboxylic dianhydride-2,2-bis[4-(4-aminophenoxy)phenyl]propane copolymer, reaction products with silicones 96926-75-9DP, 3,3',4,4'-Biphenyltetracarboxylic dianhydride-2,2-bis[4-(4-aminophenoxy)phenyl]propane copolymer, sru, reaction products with silicones 216752-18-0DP, reaction products with silicones, diaminodiphenyl ether, biphenyltetracarboxylic dianhydride, and bis(aminophenoxy)benzene 216752-18-0P **514625-58-2P**  
514625-63-9P 514625-71-9P

RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)

(manufacture of ketone- and/or ether-soluble block copolyimides)  
IT 78-93-3, Methyl ethyl ketone, uses 96-22-0, Diethyl ketone 100-66-3, Anisole, uses 103-73-1, Phenetol 107-87-9, Methyl propyl ketone 108-10-1, Methyl isobutyl ketone 108-20-3, Diisopropyl ether 108-83-8, Diisobutyl ketone 108-94-1, Cyclohexanone, uses 109-99-9, uses 111-13-7, Methyl hexyl ketone 111-43-3, Dipropyl ether 111-96-6, Diethylene glycol dimethyl ether 120-92-3, Cyclopentanone 123-42-2, Diacetone alcohol 123-54-6, Acetylacetone, uses 142-68-7, Tetrahydropyran 142-96-1, Dibutyl ether 539-30-0, Ethyl benzyl ether 563-80-4, Methyl isopropyl ketone 565-80-0, Diisopropyl ketone 591-78-6, Methyl butyl ketone 628-04-6, Ethyl isoamyl ether 637-92-3 1331-22-2, Methylcyclohexanone 25512-62-3, Cyclohexen-1-one 26897-24-5  
RL: NUU (Other use, unclassified); USES (Uses)

(manufacture of ketone- and/or ether-soluble block copolyimides)

IT 108-29-2,  $\gamma$ -Valerolactone  
RL: CAT (Catalyst use); USES (Uses)  
(polymerization catalysts, amines and; manufacture of ketone- and/or ether-soluble block copolyimides)

IT 109-02-4, N-Methylmorpholine 110-86-1, Pyridine, uses  
RL: CAT (Catalyst use); USES (Uses)  
(polymerization catalysts, lactones and; manufacture of ketone- and/or ether-soluble block copolyimides)

IT 67-68-5, Dimethyl sulfoxide, uses 68-12-2, N,N-Dimethylformamide, uses 127-19-5, N,N-Dimethylacetamide 872-50-4, N-Methylpyrrolidone, uses  
RL: NUU (Other use, unclassified); USES (Uses)

(solvent; manufacture of ketone- and/or ether-soluble block copolyimides)

IT **514625-58-2P**  
RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)

(manufacture of ketone- and/or ether-soluble block copolyimides)

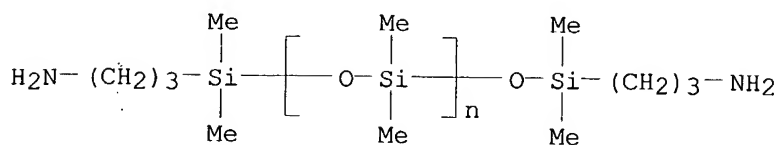
RN 514625-58-2 HCAPLUS

CN 4,8-Ethano-1H,3H-benzo[1,2-c:4,5-c']difuran-1,3,5,7-tetrone, 3a,4,8,8a-tetrahydro-, polymer with  $\alpha$ -[(3-aminopropyl)dimethylsilyl]- $\omega$ -[[[(3-aminopropyl)dimethylsilyl]oxy]poly[oxy(dimethylsilylene)]], 5-amino-1,3,3-trimethylcyclohexanemethanamine and [5,5'-biisobenzofuran]-1,1',3,3'-tetrone, block (9CI) (CA INDEX NAME)

CM 1

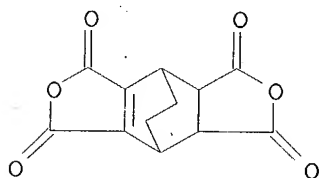
CRN 97917-34-5

CMF (C2 H6 O Si)n C10 H28 N2 O Si2  
CCI PMS



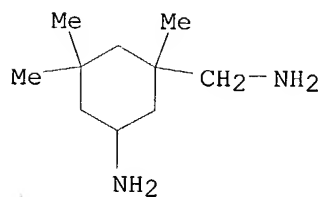
CM 2

CRN 6706-02-1  
CMF C12 H8 O6



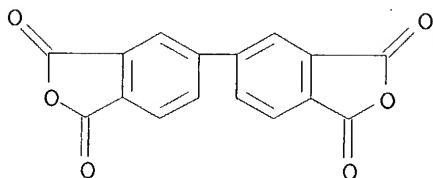
CM 3

CRN 2855-13-2  
CMF C10 H22 N2



CM 4

CRN 2420-87-3  
CMF C16 H6 O6





AN 2002:900902 HCAPLUS  
 DN 138:5073  
 ED Entered STN: 27 Nov 2002  
 TI Polyimide **compositions** with good storage stability and their manufacture  
 IN Kamimura, Seiji; Suzuki, Yukio; Hosokawa, Katsumoto; Ando, Yoshiyuki; Asano, Kenji  
 PA Hitachi Cable, Ltd., Japan  
 SO Jpn. Kokai Tokkyo Koho, 7 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 IC ICM. C08G073-10  
 CC 37-6 (Plastics Manufacture and Processing)  
 Section cross-reference(s): 38, 74

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002338684	A2	20021127	JP 2001-151199	20010521
PRAI	JP 2001-151199		20010521		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
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JP 2002338684	ICM	C08G073-10
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AB The compns., useful for liquid crystal displays, etc., comprise polar solvent solns. of polyimides, which are directly prepared from bicyclooctenetetracarboxylic acid dianhydride (I), 3,3',4,4'-biphenyltetracarboxylic acid dianhydride (II), 3,5-diaminobenzoic acid (III), and 3,3'-dimethyl-4,4'-diaminodicyclohexylmethane (IV) by imidation. Thus, polymerization of I 7.45, II 17.65, III 6.85, IV 10.73 g in the

presence of 0.9 g  $\gamma$ -valerolactone in NMP gave a polyimide (Mw 150,000) solution, which was made into a film with Tg 218° and 5% weight loss temperature 390°.

ST polyimide storage stability valerolactone polymn catalyst; liq crystal display polyimide film; bicyclooctene carboxylic biphenyl aminobenzoic methylaminocyclohexylmethane polyimide film

IT Heat-resistant materials

(films; manufacture of polyimide compns. with good storage stability)

IT Films

(heat-resistant; manufacture of polyimide compns. with good storage stability)

IT Liquid crystal displays

Polymerization catalysts

(manufacture of polyimide compns. with good storage stability)

IT Polyimides, preparation

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(manufacture of polyimide compns. with good storage stability)

IT Lactones

RL: CAT (Catalyst use); USES (Uses)

(polymerization catalysts; manufacture of polyimide compns. with good storage stability)

IT **476435-25-3P**, Bicyclo[2,2,2]oct-7-ene-2,3,5,6-tetracarboxylic acid dianhydride-3,3',4,4'-biphenyltetracarboxylic acid dianhydride-3,5-diaminobenzoic acid-3,3'-dimethyl-4,4'-diaminodicyclohexylmethane copolymer

RL: **IMF (Industrial manufacture)**; TEM (Technical or engineered

material use); **PREP (Preparation)**; USES (Uses)

(manufacture of polyimide compns. with good storage stability)

IT 108-29-2,  $\gamma$ -Valerolactone 695-06-7,  $\gamma$ -Caprolactone  
3068-88-0,  $\beta$ -Butyrolactone

RL: CAT (Catalyst use); USES (Uses)

(polymerization catalyst; manufacture of polyimide compns. with good storage stability)

IT **476435-25-3P**, Bicyclo[2,2,2]oct-7-ene-2,3,5,6-tetracarboxylic acid dianhydride-3,3',4,4'-biphenyltetracarboxylic acid dianhydride-3,5-diaminobenzoic acid-3,3'-dimethyl-4,4'-diaminodicyclohexylmethane copolymer

RL: **IMF (Industrial manufacture)**; TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)

(manufacture of polyimide compns. with good storage stability)

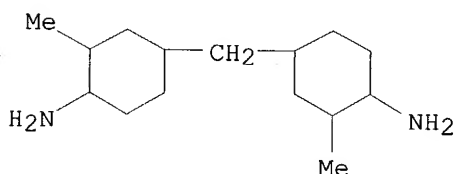
RN 476435-25-3 HCAPLUS

CN Benzoic acid, 3,5-diamino-, polymer with [5,5'-biisobenzofuran]-1,1',3,3'-tetrone, 3a,4,4a,7a,8,8a-hexahydro-4,8-etheno-1H,3H-benzo[1,2-c:4,5-c']difuran-1,3,5,7-tetrone and 4,4'-methylenebis[2-methylcyclohexanamine] (9CI) (CA INDEX NAME)

CM 1

CRN 6864-37-5

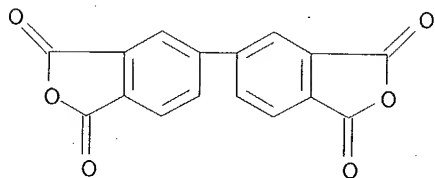
CMF C15 H30 N2



CM 2

CRN 2420-87-3

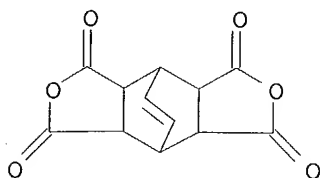
CMF C16 H6 O6



CM 3

CRN 1719-83-1

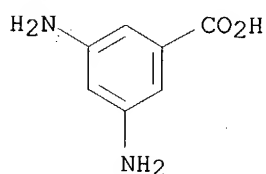
CMF C12 H8 O6



CM 4

CRN 535-87-5

CMF C7 H8 N2 O2



L52 ANSWER 8 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN  
 AN 2002:849949 HCAPLUS  
 DN 137:343902  
 ED Entered STN: 08 Nov 2002  
 TI Resin **composition** containing polyimide precursor, process for  
 producing resin **composition**, and method of forming and  
 patterning resin film on metal printed circuits  
 IN Nomura, Mamiko; Hasegawa, Masatoshi; Ishii, Junichi; Akamatsu, Tadashi  
 PA Sony Chemical Corp., Japan  
 SO PCT Int. Appl., 62 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA Japanese  
 IC ICM G03F007-037  
 ICS G03F007-022; C08L079-08; H01L021-027  
 CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other  
 Reprographic Processes)  
 Section cross-reference(s): 35, 38, 76

*applicants*

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002088845	A1	20021107	WO 2002-JP3807	20020417
	W: CN, US				
	JP 2002323766	A2	20021108	JP 2001-125585	20010424
	US 2004127595	A1	20040701	US 2003-693842	20031024
PRAI	JP 2001-125585	A	20010424		
	WO 2002-JP3807	A1	20020417		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2002088845	ICM	G03F007-037
	ICS	G03F007-022; C08L079-08; H01L021-027

AB A resin **composition** comprises a polyimide precursor and a  
**photosensitizer**, wherein the polyimide precursor has structural

units represented [-CO(HOOC)A1(COOH)C(:O)NHA2NH-] (A1 = tetravalent organic group; A2 = divalent organic group having alicyclic structure). Due to this polyimide precursor, the **composition** gives a film having excellent light-transmitting properties in a wide wavelength range. The polyimide precursor has been partly imidized to a degree of 7.5% to 36%. Because of this, the resin **composition** has low solubility in a developing solution and the unexposed areas do not dissolve in the developing solution

ST polyimide precursor resin **compn** imidization film formation patterning; printed circuit resin film patterning

IT Printed circuit boards  
(flexible; polyimide precursor in resin **composition** used for formation and patterning of film on printed circuit board)

IT Imidation  
(polyimide precursor in resin **composition** used for formation and patterning of film on printed circuit board)

IT Polyamic acids

Polyimides, uses

RL: TEM (Technical or engineered material use); USES (Uses)

(polyimide precursor in resin **composition** used for formation and patterning of film on printed circuit board)

IT 120199-30-6P 120217-98-3P, 3,3',4,4'-

Biphenyltetracarboxylic acid dianhydride-4,4'-

methylenebis(cyclohexylamine) copolymer 120217-99-4P,

3,3',4,4'-Biphenyltetracarboxylic acid dianhydride-1,4-diaminocyclohexane copolymer 120218-21-5P

RL: EPR (Engineering process); PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); TEM

(Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)

(polyimide precursor in resin **composition** used for formation and patterning of film on printed circuit board)

RE.CNT 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Hitachi Chemical Co Ltd; JP 11-153868 A 1999 HCAPLUS

(2) Hitachi Kasei Dupon Micro Systems Kabushiki Kaisha; JP 11-338143 A 1999 HCAPLUS

(3) International Business Machines Corp; EP 224680 A 1990 HCAPLUS

(4) International Business Machines Corp; DE 3683464 C 1990

(5) International Business Machines Corp; US 4880722 A 1990 HCAPLUS

(6) International Business Machines Corp; US 4942108 A 1990 HCAPLUS

(7) International Business Machines Corp; JP 62-135824 A 1990 HCAPLUS

(8) Toray Industries Inc; WO 0014604 A 2000 HCAPLUS

(9) Toray Industries Inc; EP 1037112 A 2000 HCAPLUS

(10) Toray Industries Inc; JP 2000199958 A 2000 HCAPLUS

(11) Toray Industries Inc; KR 2001031874 A 2000

(12) Toshiba Corp; JP 06-73003 A 1994 HCAPLUS

(13) Toshiba Corp; JP 2000330297 A 2000 HCAPLUS

(14) Toshiba Corp; US 6316170 A 2000 HCAPLUS

IT 120199-30-6P 120217-98-3P, 3,3',4,4'-

Biphenyltetracarboxylic acid dianhydride-4,4'-

methylenebis(cyclohexylamine) copolymer 120217-99-4P,

3,3',4,4'-Biphenyltetracarboxylic acid dianhydride-1,4-diaminocyclohexane copolymer 120218-21-5P

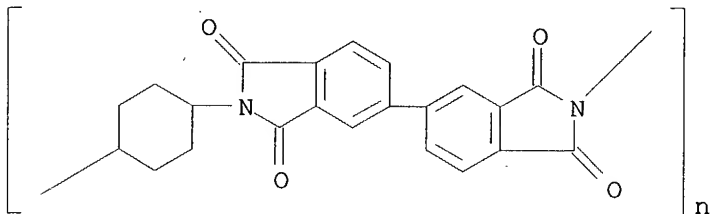
RL: EPR (Engineering process); PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); TEM

(Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)

(polyimide precursor in resin **composition** used for formation and patterning of film on printed circuit board)

RN 120199-30-6 HCAPLUS

CN Poly[(1,1',3,3'-tetrahydro-1,1',3,3'-tetraoxo[5,5'-bi-2H-isoindole]-2,2'-diyl)-1,4-cyclohexanediyl] (9CI) (CA INDEX NAME)



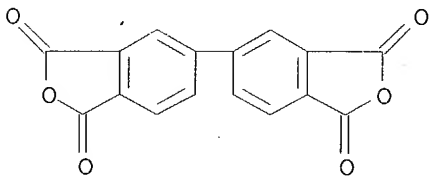
RN 120217-98-3 HCAPLUS

CN [5,5'-Biisobenzofuran]-1,1',3,3'-tetrone, polymer with 4,4'-methylenebis[cyclohexanamine] (9CI) (CA INDEX NAME)

CM 1

CRN 2420-87-3

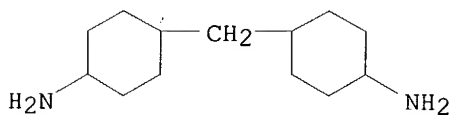
CMF C16 H6 O6



CM 2

CRN 1761-71-3

CMF C13 H26 N2



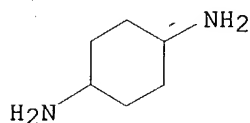
RN 120217-99-4 HCAPLUS

CN [5,5'-Biisobenzofuran]-1,1',3,3'-tetrone, polymer with 1,4-cyclohexanediamine (9CI) (CA INDEX NAME)

CM 1

CRN 3114-70-3

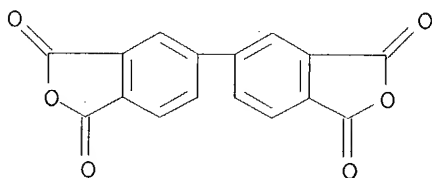
CMF C6 H14 N2



CM 2

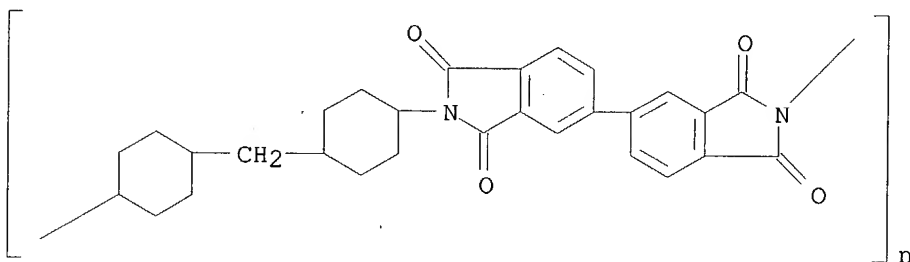
CRN 2420-87-3

CMF C16 H6 O6



RN 120218-21-5 HCAPLUS

CN Poly[(1,1',3,3'-tetrahydro-1,1',3,3'-tetraoxo[5,5'-bi-2H-isoindole]-2,5'-diyl)-1,4-cyclohexanediylmethylene-1,4-cyclohexanediyl] (9CI) (CA INDEX NAME)



L52 ANSWER 9 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 2002:516384 HCAPLUS

DN 137:79948

ED Entered STN: 11 Jul 2002

TI Biaxially oriented polyester films with good heat resistance and reduced thickness fluctuation

IN Hosokawa, Hirofumi; Imanishi, Yasuyuki; Tsunekawa, Tetsuya

PA Toray Industries, Inc., Japan

SO Jpn. Kokai Tokkyo Koho, 13 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM C08J005-18

ICS B29C055-12; C08L067-00; C08L079-08; B29K067-00; B29K079-00; B29L007-00

CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 76, 77

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002194115	A2	20020710	JP 2001-293400	20010926
PRAI	JP 2000-320698	A	20001020		

## CLASS

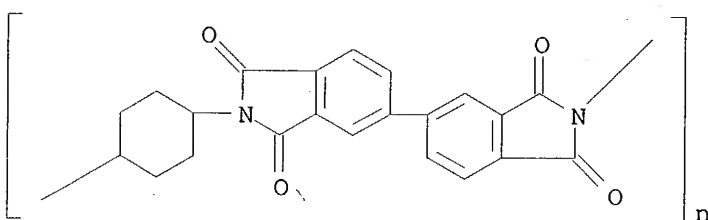
	PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
	JP 2002194115	ICM	C08J005-18
		ICS	B29C055-12; C08L067-00; C08L079-08; B29K067-00; B29K079-00; B29L007-00
AB	The films, useful for magnetic tapes, elec. capacitors, etc., comprise polyesters and polyimides and show thickness fluctuation 0-15%, melt specific resistance $1 + 107^{-1} + 1010 \Omega\text{-cm}$ , and intrinsic viscosity 0.5-0.8 dL/g. Thus, a <b>composition</b> comprising PET-Ultem 1010 1:1 blend 20, PET 75, and elec. conductive PET (containing Li acetate, Mg acetate, and Sb2O3) 5% was extruded, cooled on a drum, and stretched to give a film showing thickness fluctuation 8%, melt specific resistance $7 + 107 \Omega\text{-cm}$ , and intrinsic viscosity 0.61 dL/g.		
ST	polyester polyimide film thickness fluctuation low; magnetic tape polyester film polyether polyimide; elec capacitor PET film polyether polyimide		
IT	Polyimides, uses RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (biaxially oriented polyester films with good heat resistance and reduced thickness fluctuation)		
IT	Polyesters, uses RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses) (biaxially oriented polyester films with good heat resistance and reduced thickness fluctuation)		
IT	Capacitors Magnetic tapes Plastic films (biaxially oriented polyester films with good heat resistance and reduced thickness fluctuation for)		
IT	Polyimides, uses RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses) (polyether-; biaxially oriented polyester films with good heat resistance and reduced thickness fluctuation)		
IT	Polyethers, uses RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses) (polyimide-; biaxially oriented polyester films with good heat resistance and reduced thickness fluctuation)		
IT	<b>151367-06-5P 151372-67-7P</b> , Biphenyltetracarboxylic acid dianhydride-trans-1,4-diaminocyclohexane copolymer 169458-34-8P RL: <b>IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)</b> (biaxially oriented polyester films with good heat resistance and reduced thickness fluctuation)		
IT	24968-11-4, Poly(ethylene-2,6-naphthalate) 25038-59-9, Poly(ethylene terephthalate), uses 25230-87-9 61128-24-3, Ultem 1010 61128-46-9 RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses) (biaxially oriented polyester films with good heat resistance and reduced thickness fluctuation)		

IT 142-72-3, Magnesium acetate 7439-96-5D, Manganese, compds.  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (conductivity improver; biaxially oriented polyester films with good heat resistance and reduced thickness fluctuation)

IT 151367-06-5P 151372-67-7P, Biphenyltetracarboxylic acid dianhydride-trans-1,4-diaminocyclohexane copolymer  
 RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (biaxially oriented polyester films with good heat resistance and reduced thickness fluctuation)

RN 151367-06-5 HCAPLUS

CN Poly[(1,1',3,3'-tetrahydro-1,1',3,3'-tetraoxo[5,5'-bi-2H-isoindole]-2,2'-diyl)-trans-1,4-cyclohexanediyl] (9CI) (CA INDEX NAME)



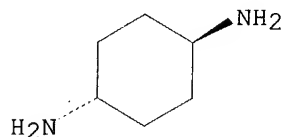
RN 151372-67-7 HCAPLUS

CN [5,5'-Biisobenzofuran]-1,1',3,3'-tetrone, polymer with trans-1,4-cyclohexanediamine (9CI) (CA INDEX NAME)

CM 1

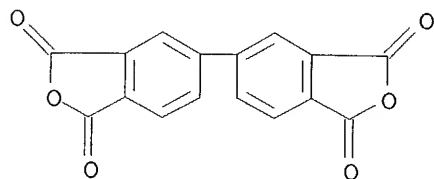
CRN 2615-25-0  
 CMF C6 H14 N2

Relative stereochemistry.



CM 2

CRN 2420-87-3  
 CMF C16 H6 O6





L52 ANSWER 10 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN  
 AN 2002:422963 HCAPLUS  
 DN 137:13260  
 ED Entered STN: 05 Jun 2002  
 TI Polyamic acids having cyclohexylene structure as polyimide precursors,  
 their manufacture, and **photosensitive** resin **compositions**  
 containing the precursors  
 IN Hasegawa, Tadatoshi; Kojima, Ryoji; Hanada, Tsuneo; Nomura, Mamiko  
 PA Sony Chemical Corp., Japan  
 SO Jpn. Kokai Tokkyo Koho, 9 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 IC ICM C08G073-10  
 ICS C08F002-48; C08F283-04; G03F007-039  
 CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other  
 Reprographic Processes)  
 Section cross-reference(s): 38

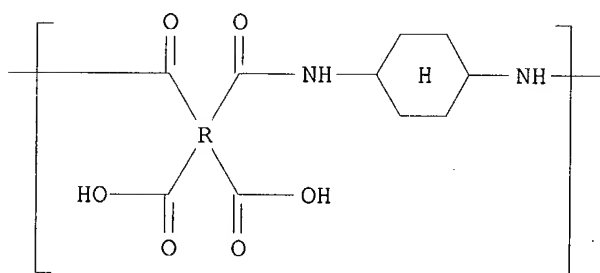
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002161136	A2	20020604	JP 2001-134324	20010501
PRAI	JP 2000-280916	A	20000914		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 2002161136	ICM	C08G073-10
	ICS	C08F002-48; C08F283-04; G03F007-039

GI



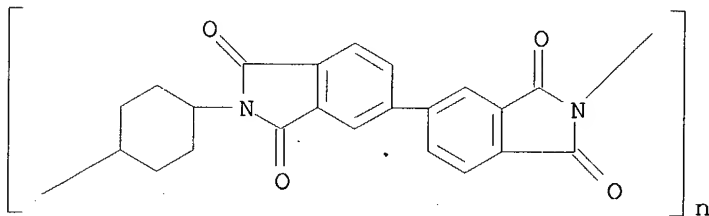
I

AB The polyamic acids as polyimide precursors shown as I (R = aromatic residue) with reduced viscosity  $\geq 2.0$  dL/g are manufactured by reaction of aromatic acid dianhydrides with trans-1,4-diaminocyclohexane to form salts, followed by heating the reaction mixture at 80-150° to partially dissolve the salts and stirring at room temperature for polymerization. The precursors are heated to give polyimides. The **photosensitive** compns. contain the above precursors, crosslinking agents, and photopolymn. initiators. The compns. show high transparency and give high-resolution relief pattern with low dielec. constant

ST polyamic acid cyclohexylene polyimide precursor photoresist; cyclohexanediamine biphenyltetracarboxylic anhydride salt polymn transparent polyimide

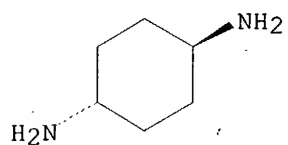
X

- IT Electric insulators  
Photoresists  
(polyamic acids having cyclohexylene structure as polyimide precursors for high-resolution **photosensitive** resin compns.)
- IT Polyamic acids  
RL: IMF (Industrial manufacture); RCT (Reactant); TEM (Technical or engineered material use); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)  
(polyamic acids having cyclohexylene structure as polyimide precursors for high-resolution **photosensitive** resin compns.)
- IT Polyimides, preparation  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polyamic acids having cyclohexylene structure as polyimide precursors for high-resolution **photosensitive** resin compns.)
- IT 4245-37-8, Vinyl methacrylate  
RL: TEM (Technical or engineered material use); USES (Uses)  
(photoresist **composition** containing; polyamic acids having cyclohexylene structure as polyimide precursors for high-resolution **photosensitive** resin compns.)
- IT 151367-06-5P 151372-67-7P 433287-11-7P  
433685-62-2P  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polyamic acids having cyclohexylene structure as polyimide precursors for high-resolution **photosensitive** resin compns.)
- IT 151367-06-5P 151372-67-7P 433287-11-7P  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polyamic acids having cyclohexylene structure as polyimide precursors for high-resolution **photosensitive** resin compns.)
- RN 151367-06-5 HCAPLUS
- CN Poly[(1,1',3,3'-tetrahydro-1,1',3,3'-tetraoxo[5,5'-bi-2H-isoindole]-2,2'-diyl)-trans-1,4-cyclohexanediyl] (9CI) (CA INDEX NAME)



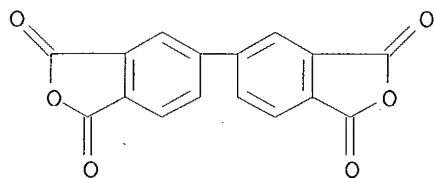
- RN 151372-67-7 HCAPLUS
- CN [5,5'-Biisobenzofuran]-1,1',3,3'-tetrone, polymer with trans-1,4-cyclohexanediamine (9CI) (CA INDEX NAME)
- CM 1
- CRN 2615-25-0
- CMF C6 H14 N2

Relative stereochemistry.



CM 2

CRN 2420-87-3  
CMF C16 H6 O6

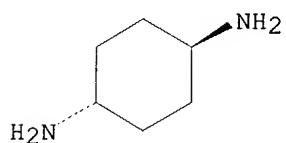


RN 433287-11-7 HCAPLUS  
CN 1H,3H-Benzo[1,2-c:4,5-c']difuran-1,3,5,7-tetrone, polymer with  
[5,5'-biisobenzofuran]-1,1',3,3'-tetrone and trans-1,4-cyclohexanediamine  
(9CI) (CA INDEX NAME)

CM 1

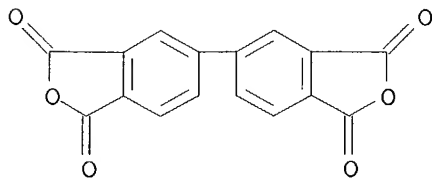
CRN 2615-25-0  
CMF C6 H14 N2

Relative stereochemistry.



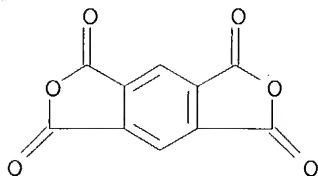
CM 2

CRN 2420-87-3  
CMF C16 H6 O6



CM 3

CRN 89-32-7  
CMF C10 H2 O6



L52 ANSWER 11 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN  
AN 2001:741298 HCAPLUS  
DN 135:310919  
ED Entered STN: 11 Oct 2001  
TI Alkali-developable **photosensitive** resin **composition**  
for photoresist method of forming pattern, and electronic parts  
IN Komatsu, Hiroshi; Kojima, Yasunori; Watanabe, Naoki  
PA Hitachi Chemical Du Pont Micro System Co., Ltd., Japan  
SO Jpn. Kokai Tokkyo Koho, 18 pp.  
CODEN: JKXXAF  
DT Patent  
LA Japanese  
IC ICM G03F007-037  
ICS C08F002-50; C08F283-04; C08F290-00; C08G073-10; G03F007-027;  
G03F007-038  
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other  
Reprographic Processes)  
Section cross-reference(s): 35, 38, 76

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2001281859	A2	20011010	JP 2000-98906	20000331
PRAI	JP 2000-98906		20000331		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 2001281859	ICM	G03F007-037
	ICS	C08F002-50; C08F283-04; C08F290-00; C08G073-10; G03F007-027; G03F007-038

AB The alkali-developable **photosensitive resin composition** comprises (a) a polyimide precursor having an acidic functional group in the mol. chain and being soluble in an alkaline water solution, (b) a **photosensitive** agent, and (c) a Si compound having a reactive unsatd. group, an akoxy group, and an acyloxy group. Method of forming a pattern from above **composition** and an electronic parts having a patterned obtained by the process are also claimed.

ST photoresist **photosensitive** resin **compn** patterning  
electronic parts; polyimide precursor photoresist

(alkali-developable **photosensitive resin composition** for photoresist containing polyimide precursor)

IT Polyimides, processes

RL: PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)

(alkali-developable **photosensitive resin composition** for photoresist containing polyimide precursor)

IT Polyamic acids

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(alkali-developable **photosensitive resin composition** for photoresist containing polyimide precursor)

IT 365972-05-0P 365972-06-1P 365972-07-2P 365972-08-3P

365972-09-4P 365972-10-7P 365972-11-8P

365972-12-9P 365972-13-0P 365972-14-1P

365972-15-2P 365972-16-3P 365972-17-4P 365972-18-5P 365972-19-6P

365972-20-9P

RL: PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)

(alkali-developable **photosensitive resin composition** for photoresist containing polyimide precursor)

IT 365972-08-3P 365972-09-4P 365972-10-7P

365972-11-8P 365972-12-9P 365972-13-0P

365972-14-1P 365972-20-9P

RL: PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)

(alkali-developable **photosensitive resin composition** for photoresist containing polyimide precursor)

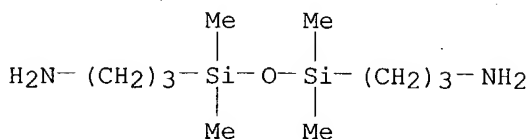
RN 365972-08-3 HCAPLUS

CN Benzoic acid, 3,5-diamino-, polymer with 1,3-benzenediamine, 1H,3H-benzo[1,2-c:4,5-c']difuran-1,3,5,7-tetrone, [5,5'-biisobenzofuran]-1,1',3,3'-tetrone, 2-hydroxyethyl 2-methyl-2-propenoate, N,N'-methanetetraylbis[cyclohexanamine] and 3,3'-(1,1,3,3-tetramethyl-1,3-disiloxanediyl)bis[1-propanamine] (9CI) (CA INDEX NAME)

CM 1

CRN 2469-55-8

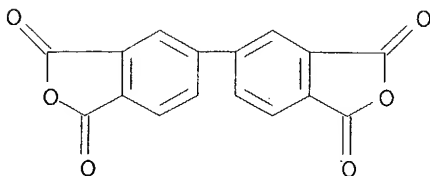
CMF C10 H28 N2 O Si2



CM 2

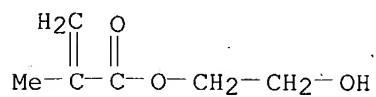
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CMF C16 H6 O6



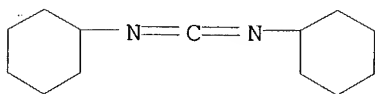
CM 3

CRN 868-77-9  
CMF C6 H10 O3



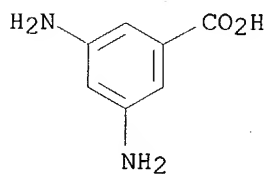
CM 4

CRN 538-75-0  
CMF C13 H22 N2



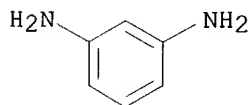
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CRN 535-87-5  
CMF C7 H8 N2 O2



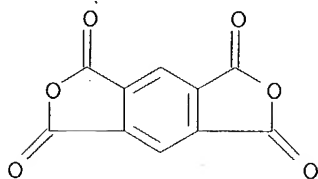
CM 6

CRN 108-45-2  
CMF C6 H8 N2



CM 7

CRN 89-32-7  
CMF C10 H2 O6



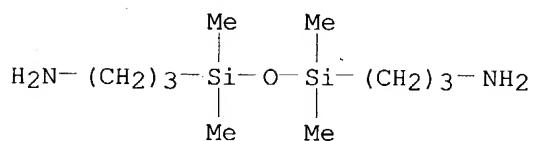
RN 365972-09-4 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, polymer with [5,5'-biisobenzofuran]-1,1',3,3'-tetrone, 3,3'-dimethyl[1,1'-biphenyl]-4,4'-diamine, N,N'-methanetetraylbis[cyclohexanamine] and 3,3'-(1,1,3,3-tetramethyl-1,3-disiloxanediyl)bis[1-propanamine] (9CI) (CA INDEX NAME)

CM 1

CRN 2469-55-8

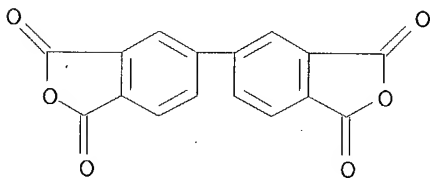
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CM 2

CRN 2420-87-3

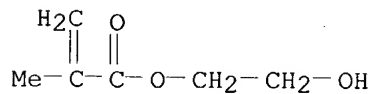
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CM 3

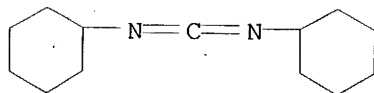
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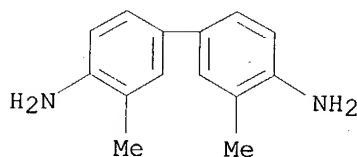
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CM 5

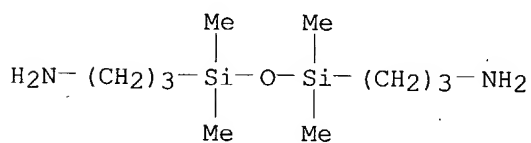
CRN 119-93-7  
CMF C14 H16 N2



RN 365972-10-7 HCAPLUS  
CN 2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, polymer with  
1,4-benzenediamine, [5,5'-biisobenzofuran]-1,1',3,3'-tetrone,  
N,N'-methanetetraylbis[cyclohexanamine] and 3,3'-(1,1,3,3-tetramethyl-1,3-  
disiloxanediyl)bis[1-propanamine] (9CI) (CA INDEX NAME)

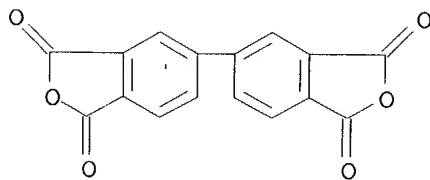
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CRN 2469-55-8  
CMF C10 H28 N2 O Si2



CM 2

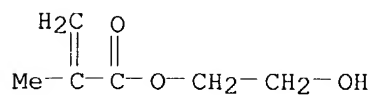
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CMF C16 H6 O6





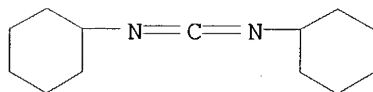
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CRN 868-77-9  
CMF C6 H10 O3



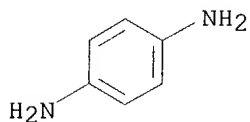
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CMF C13 H22 N2



CM 5

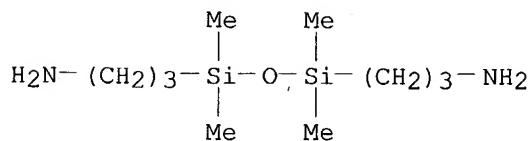
CRN 106-50-3  
CMF C6 H8 N2



RN 365972-11-8 HCAPLUS  
CN 2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, polymer with  
1,3-benzenediamine, [5,5'-biisobenzofuran]-1,1',3,3'-tetrone,  
N,N'-methanetetraylbis[cyclohexanamine] and 3,3'-(1,1,3,3-tetramethyl-1,3-  
disiloxanediyl)bis[1-propanamine] (9CI) (CA INDEX NAME)

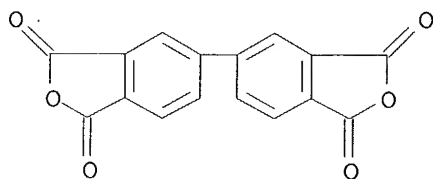
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CRN 2469-55-8  
CMF C10 H28 N2 O Si2



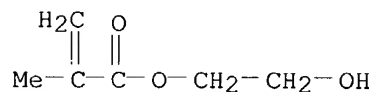
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CRN 2420-87-3  
CMF C16 H6 O6



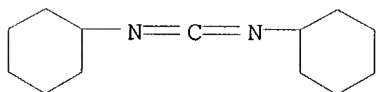
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CRN 868-77-9  
CMF C6 H10 O3



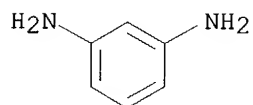
CM 4

CRN 538-75-0  
CMF C13 H22 N2



CM 5

CRN 108-45-2  
CMF C6 H8 N2



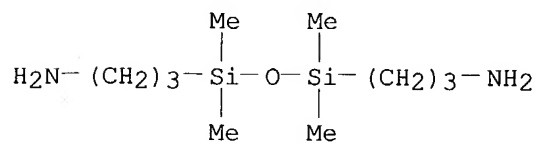
RN 365972-12-9 HCAPLUS

CN Benzoic acid, 3,5-diamino-, polymer with [5,5'-biisobenzofuran]-1,1',3,3'-tetrone, 3,3'-dimethyl[1,1'-biphenyl]-4,4'-diamine, 2-hydroxyethyl 2-methyl-2-propenoate, N,N'-methanetetraylbis[cyclohexanamine] and 3,3'-(1,1,3,3-tetramethyl-1,3-disiloxanediyl)bis[1-propanamine] (9CI) (CA INDEX NAME)

CM 1

CRN 2469-55-8

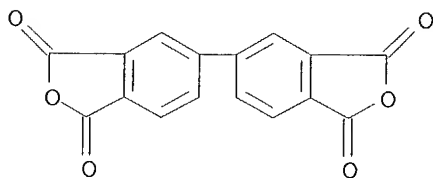
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CM 2

CRN 2420-87-3

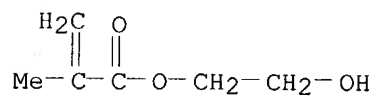
CMF C16 H6 O6



CM 3

CRN 868-77-9

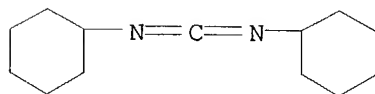
CMF C6 H10 O3



CM 4

CRN 538-75-0

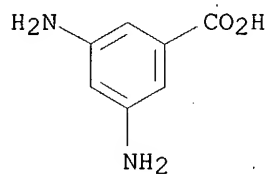
CMF C13 H22 N2



CM 5

CRN 535-87-5

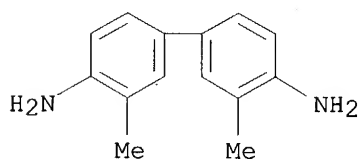
CMF C7 H8 N2 O2



CM 6

CRN 119-93-7

CMF C14 H16 N2



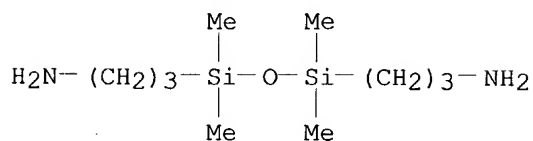
RN 365972-13-0 HCAPLUS

CN Benzoic acid, 3,5-diamino-, polymer with 1,4-benzenediamine, [5,5'-biisobenzofuran]-1,1',3,3'-tetrone, 2-hydroxyethyl 2-methyl-2-propenoate, N,N'-methanetetraylbis[cyclohexanamine] and 3,3'-(1,1,3,3-tetramethyl-1,3-disiloxanediyl)bis[1-propanamine] (9CI) (CA INDEX NAME)

CM 1

CRN 2469-55-8

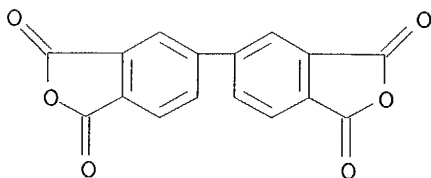
CMF C10 H28 N2 O Si2



CM 2

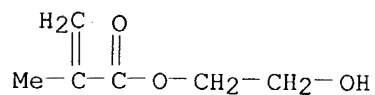
CRN 2420-87-3

CMF C16 H6 O6



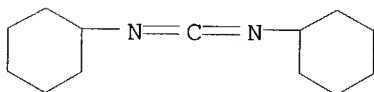
CM 3

CRN 868-77-9  
CMF C6 H10 O3



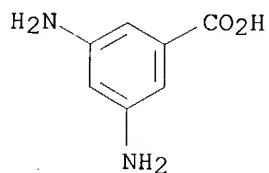
CM 4

CRN 538-75-0  
CMF C13 H22 N2



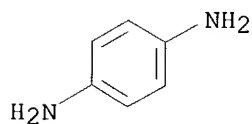
CM 5

CRN 535-87-5  
CMF C7 H8 N2 O2



CM 6

CRN 106-50-3  
CMF C6 H8 N2



RN 365972-14-1 HCAPLUS

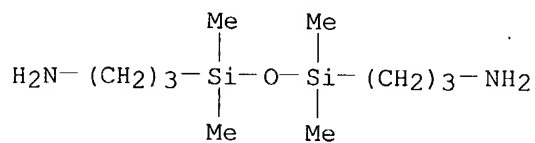
CN Benzoic acid, 3,5-diamino-, polymer with 1,3-benzenediamine,  
[5,5'-biisobenzofuran]-1,1',3,3'-tetrone, 2-hydroxyethyl  
2-methyl-2-propenoate, N,N'-methanetetraylbis[cyclohexanamine] and

3,3'-(1,1,3,3-tetramethyl-1,3-disiloxanediyl)bis[1-propanamine] (9CI) (CA INDEX NAME)

CM 1

CRN 2469-55-8

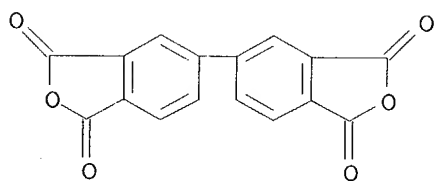
CMF C10 H28 N2 O Si2



CM 2

CRN 2420-87-3

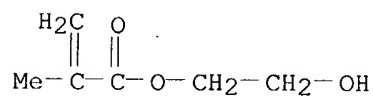
CMF C16 H6 O6



CM 3

CRN 868-77-9

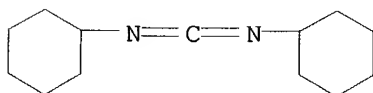
CMF C6 H10 O3



CM 4

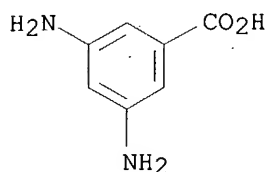
CRN 538-75-0

CMF C13 H22 N2



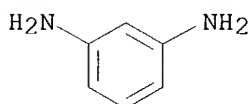
CM 5

CRN 535-87-5  
CMF C7 H8 N2 O2



CM 6

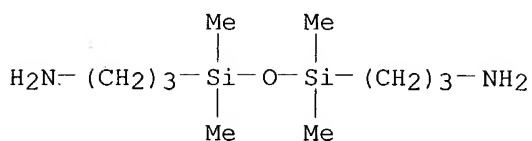
CRN 108-45-2  
CMF C6 H8 N2



RN 365972-20-9 HCAPLUS  
CN 2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, polymer with  
[5,5'-biisobenzofuran]-1,1',3,3'-tetrone, N,N'-  
methanetetraylbis[cyclohexanamine], 3,3'-(1,1,3,3-tetramethyl-1,3-  
disiloxanediy)lbis[1-propanamine] and 4,4'-thiobis[benzenamine] (9CI) (CA  
INDEX NAME)

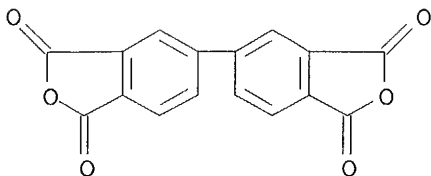
CM 1

CRN 2469-55-8  
CMF C10 H28 N2 O Si2



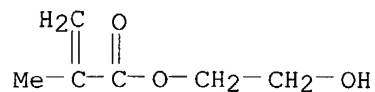
CM 2

CRN 2420-87-3  
CMF C16 H6 O6



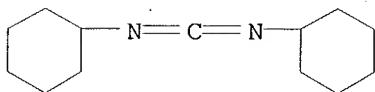
CM 3

CRN 868-77-9  
CMF C6 H10 O3



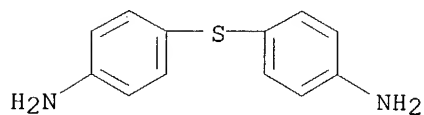
CM 4

CRN 538-75-0  
CMF C13 H22 N2



CM 5

CRN 139-65-1  
CMF C12 H12 N2 S



L52 ANSWER 12 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN  
AN 1999:111877 HCAPLUS  
DN 130:175314  
ED Entered STN: 18 Feb 1999  
TI Semiconductor device having polyimide protective film and fabrication of the device  
IN Yumiba, Tomoyuki; Fujikawa, Masao; Miura, Yasuo  
PA Toray Industries, Inc., Japan  
SO Jpn. Kokai Tokkyo Koho, 10 pp.  
CODEN: JKXXAF  
DT Patent  
LA Japanese  
IC ICM G03F007-038  
ICS C08G073-10; G03F007-40; H01L021-027; H01L021-312  
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
Section cross-reference(s): 38, 76  
FAN.CNT 1  
PATENT NO. KIND DATE APPLICATION NO. DATE



PI	JP 11038620	A2	19990212	JP 1997-196892	19970723
PRAI	JP 1997-196892		19970723		

## CLASS

	PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
	JP 11038620	ICM	G03F007-038
		ICS	C08G073-10; G03F007-40; H01L021-027; H01L021-312
AB	The device have a polyimide protective film on a tip and the polyimide has a main structural unit [COR1(CO2R3)nCONHR2NH] (R1 = C <sub>≥</sub> 2 3- or 4-valent organic group; R2 = C <sub>≥</sub> 2 hydrocarbylene), in which 10-100 mol% of R2 is formed by curing a polyimide precursor <b>composition</b> containing aliphatic hydrocarbons linked to the amido group. The device is fabricated by coating of a substrate with the polyimide precursor <b>composition</b> , drying, exposure, developing, and curing at a high temperature The <b>composition</b> can be patterned upon exposure to i-line.		
ST	semiconductor device polyimide protective film fabrication; i line patterning polyimide precursor semiconductor		
IT	Polysiloxanes, preparation Polysiloxanes, preparation RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (polyimide-; semiconductor device having polyimide protective film formed by exposure to i-line)		
IT	Polyimides, preparation Polyimides, preparation RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (polysiloxane-; semiconductor device having polyimide protective film formed by exposure to i-line)		
IT	Photoresists Semiconductor device fabrication Semiconductor devices (semiconductor device having polyimide protective film formed by exposure to i-line)		
IT	Polyimides, preparation RL: DEV (Device component use); PNU (Preparation, unclassified); PREP (Preparation); USES (Uses) (semiconductor device having polyimide protective film formed by exposure to i-line)		
IT	<b>189292-36-2P</b> , 3,3',4,4'-Biphenyltetracarboxylic dianhydride-bis(3-aminopropyl)tetramethyldisiloxane-4,4'-methylenebis(cyclohexylamine) copolymer 189292-37-3P, 3,3',4,4'-Benzophenonetetracarboxylic dianhydride-bis(3-aminopropyl)tetramethyldisiloxane-4,4'-methylenebis(cyclohexylamine) copolymer 189292-38-4P, Bis(3-aminopropyl)tetramethyldisiloxane-4,4'-methylenebis(cyclohexylamine)-pyromellitic anhydride copolymer <b>189292-39-5P</b> , 3,3',4,4'-Biphenyltetracarboxylic dianhydride-bis(3-aminopropyl)tetramethyldisiloxane-1,3-cyclohexanediamine copolymer <b>189292-40-8P</b> , 3,3',4,4'-Biphenyltetracarboxylic dianhydride-bis(3-aminopropyl)tetramethyldisiloxane-1,4-cyclohexanediamine copolymer 189292-41-9P, 3,3',4,4'-Benzophenonetetracarboxylic dianhydride-1,3-cyclohexanediamine-bis(3-aminopropyl)tetramethyldisiloxane copolymer 189292-42-0P, 3,3',4,4'-Benzophenonetetracarboxylic dianhydride-1,4-cyclohexanediamine-bis(3-aminopropyl)tetramethyldisiloxane copolymer 189292-43-1P, 3,3',4,4'-Biphenyltetracarboxylic dianhydride-bis(3-aminopropyl)tetramethyldisiloxane-1,3-bis(aminomethyl)cyclohexane copolymer 189292-44-2P, 3,3',4,4'-Biphenyltetracarboxylic dianhydride-bis(3-aminopropyl)tetramethyldisiloxan		

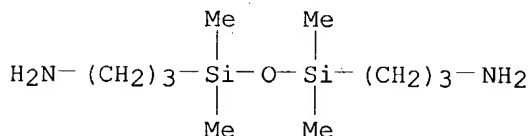
e-1,4-bis(aminomethyl)cyclohexane copolymer 189292-45-3P,  
 3,3',4,4'-Benzophenonetetracarboxylic dianhydride-1,3-  
 bis(aminomethyl)cyclohexane-bis(3-aminopropyl)tetramethyldisiloxane  
 copolymer 189292-46-4P, 3,3',4,4'-Benzophenonetetracarboxylic  
 dianhydride-1,4-bis(aminomethyl)cyclohexane-bis(3-  
 aminopropyl)tetramethyldisiloxane copolymer  
 RL: PNU (Preparation, unclassified); TEM (Technical or engineered material  
 use); **PREP (Preparation)**; USES (Uses)  
 (semiconductor device having polyimide protective film formed by  
 exposure to i-line)

IT 189292-36-2P, 3,3',4,4'-Biphenyltetracarboxylic  
 dianhydride-bis(3-aminopropyl)tetramethyldisiloxane-4,4'-  
 methylenebis(cyclohexylamine) copolymer 189292-39-5P,  
 3,3',4,4'-Biphenyltetracarboxylic dianhydride-bis(3-  
 aminopropyl)tetramethyldisiloxane-1,3-cyclohexanediamine copolymer  
 189292-40-8P, 3,3',4,4'-Biphenyltetracarboxylic  
 dianhydride-bis(3-aminopropyl)tetramethyldisiloxane-1,4-cyclohexanediamine  
 copolymer  
 RL: PNU (Preparation, unclassified); TEM (Technical or engineered material  
 use); **PREP (Preparation)**; USES (Uses)  
 (semiconductor device having polyimide protective film formed by  
 exposure to i-line)

RN 189292-36-2 HCAPLUS  
 CN [5,5'-Biisobenzofuran]-1,1',3,3'-tetrone, polymer with  
 4,4'-methylenebis[cyclohexanamine] and 3,3'-(1,1,3,3-tetramethyl-1,3-  
 disiloxanediy)bis[1-propanamine] (9CI) (CA INDEX NAME)

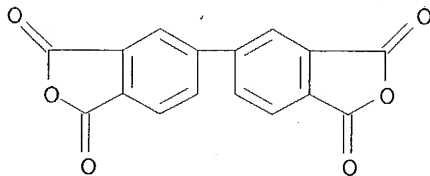
CM 1

CRN 2469-55-8  
 CMF C10 H28 N2 O Si2



CM 2

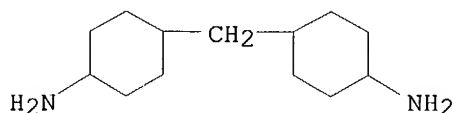
CRN 2420-87-3  
 CMF C16 H6 O6



CM 3

CRN 1761-71-3

CMF C13 H26 N2



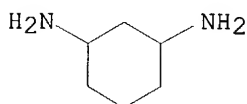
RN 189292-39-5 HCAPLUS

CN [5,5'-Biisobenzofuran]-1,1',3,3'-tetrone, polymer with  
1,3-cyclohexanediamine and 3,3'-(1,1,3,3-tetramethyl-1,3-  
disiloxanediyl)bis[1-propanamine] (9CI) (CA INDEX NAME)

CM 1

CRN 3385-21-5

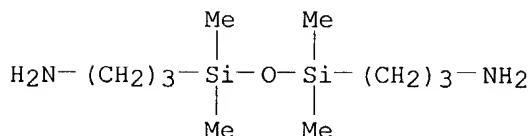
CMF C6 H14 N2



CM 2

CRN 2469-55-8

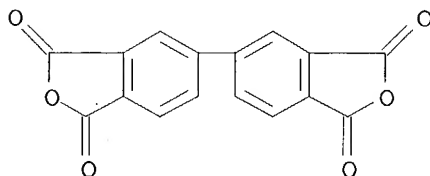
CMF C10 H28 N2 O Si2



CM 3

CRN 2420-87-3

CMF C16 H6 O6

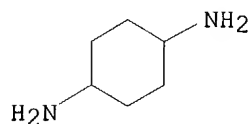


RN 189292-40-8 HCAPLUS

CN [5,5'-Biisobenzofuran]-1,1',3,3'-tetrone, polymer with  
1,4-cyclohexanediamine and 3,3'-(1,1,3,3-tetramethyl-1,3-  
disiloxanediyl)bis[1-propanamine] (9CI) (CA INDEX NAME)

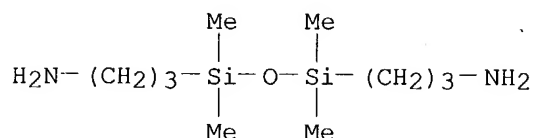
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CRN 3114-70-3  
CMF C6 H14 N2



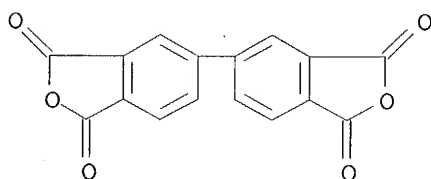
CM 2

CRN 2469-55-8  
CMF C10 H28 N2 O Si2



CM 3

CRN 2420-87-3  
CMF C16 H6 O6



L52 ANSWER 13 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN  
AN 1998:289704 HCAPLUS  
DN 129:5478  
ED Entered STN: 18 May 1998  
TI **Composition** for liquid orientation film  
IN Yokokura, Hisao; Nakada, Tadao; Funahata, Kazuyuki; Kondo, Katsuki  
PA Hitachi, Ltd., Japan; Hitachi Chemical Co., Ltd.  
SO Jpn. Kokai Tokkyo Koho, 12 pp.  
CODEN: JKXXAF  
DT Patent  
LA Japanese  
IC ICM C09K019-56  
ICS G02F001-1337  
CC 38-3 (Plastics Fabrication and Uses)  
Section cross-reference(s): 74, 75

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 10121049	A2	19980512	JP 1996-273603	19961016
PRAI	JP 1996-273603		19961016		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 10121049	ICM	C09K019-56
	ICS	G02F001-1337

AB The **composition** contains a polymer manufactured from C8-20 alkyl-containing cyclohexyldiamine and tetracarboxylic acid or its derivative. The film gives good images with high quality. The film is useful for a liquid-crystal display device, etc.

ST liq crystal orientation film display device; polyimide polyamide liq crystal orientation film

IT Liquid crystal displays  
(liquid-crystal orientation film formation **composition** containing cyclohexyldiamine and tetracarboxylic acid)

IT Polyamides, uses  
Polyimides, uses  
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)  
(liquid-crystal orientation film formation **composition** containing cyclohexyldiamine and tetracarboxylic acid)

IT Polyimides, uses  
Polyimides, uses  
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)  
(polyamic acid-; liquid-crystal orientation film formation **comprn** containing cyclohexyldiamine and tetracarboxylic acid)

IT Polyimides, uses  
Polyimides, uses  
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)  
(polyamide-; liquid-crystal orientation film formation **composition** containing cyclohexyldiamine and tetracarboxylic acid)

IT Polyamic acids  
Polyamic acids  
Polyamides, uses  
Polyamides, uses  
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)  
(polyimide-; liquid-crystal orientation film formation **composition** containing cyclohexyldiamine and tetracarboxylic acid)

IT 206865-71-6P 206865-74-9P 206865-76-1P 206865-78-3P  
206865-80-7P 206865-82-9P 207385-13-5P

RL: DEV (Device component use); IMF (Industrial manufacture);

PREP (Preparation); USES (Uses)

(liquid-crystal orientation film formation **composition** containing cyclohexyldiamine and tetracarboxylic acid)

IT 206865-80-7P  
RL: DEV (Device component use); IMF (Industrial manufacture);  
PREP (Preparation); USES (Uses)

(liquid-crystal orientation film formation **composition** containing cyclohexyldiamine and tetracarboxylic acid)

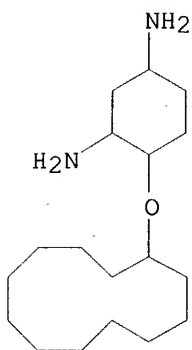
RN 206865-80-7 HCAPLUS

CN Cyclobuta[1,2-c:3,4-c']difurantetrone, tetrahydro-, polymer with [5,5'-biisobenzofuran]-1,1',3,3'-tetrone, 4-(cyclododecyloxy)-1,3-

cyclohexanediamine and 4,4'-methylenebis[benzenamine] (9CI) (CA INDEX NAME)

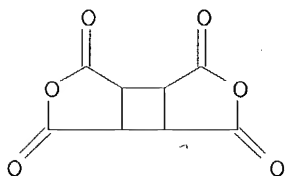
CM 1

CRN 206865-79-4  
CMF C18 H36 N2 O



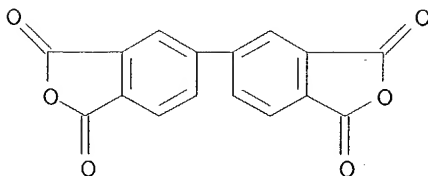
CM 2

CRN 4415-87-6  
CMF C8 H4 O6



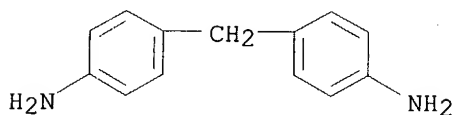
CM 3

CRN 2420-87-3  
CMF C16 H6 O6



CM 4

CRN 101-77-9  
CMF C13 H14 N2



L52 ANSWER 14 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN  
 AN 1997:435767 HCAPLUS  
 DN 127:51557  
 ED Entered STN: 14 Jul 1997  
 TI Manufacture of **photosensitive** resin **compositions**  
 providing high-resolution patterns with excellent adhesion  
 IN Takeda, Toshiro; Sashida, Nobuyuki; Makabe, Hiroaki; Takeda, Naoji  
 PA Sumitomo Bakelite Co., Ltd., Japan  
 SO Jpn. Kokai Tokkyo Koho, 23 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 IC ICM C08L079-08  
 ICS C08K005-54  
 CC 37-6 (Plastics Manufacture and Processing)  
 Section cross-reference(s): 74, 76

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 09124939	A2	19970513	JP 1995-283006	19951031
PRAI	JP 1995-283006		19951031		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 09124939	ICM	C08L079-08
	ICS	C08K005-54

AB The title comps. are prepared by obtaining a **photosensitive** resin by reacting 1 mol amine component comprising 0.1-5.0 mol% epoxysilanes  $\text{QR1Si(R23-1)(OR3)1}$  (Q = oxiranyl; R1 = divalent organic group; R2, R3 = monovalent organic group; 1 = 0, 1, 2) and 95.0-99.9 mol% diamines  $\text{R(NH2)2}$  (R = divalent organic group) with 0.95-1.05 mol dicarboxylic acid component chosen from  $\text{R7(CO2H)2(CO2R8)2}$ ,  $\text{R9(CO2H)2(CO2R8)CO2R10}$ , and  $\text{R11(CO2H)2(CO2R10)2}$  [R7, R9, R11 = tetravalent organic group; R8 =  $-\text{R13(O2CCR12:CH2)p}$ ; R10 =  $-\text{R13(O2CCR12:CH2)q}$ , alkyl; R12 = H, Me; R13 = di- to hexavalent organic group; p, q = 1-5] in a polar organic solvent in the presence of a condensing agent, then mixing with photoinitiators and/or **photosensitizers**. A suspension of 3,3',4,4'-benzophenonetetracarboxylic dianhydride 322.2, glycerol dimethacrylate 228.3, and methanol 32 g in N-methyl-2-pyrrolidone was treated with 166.1 g pyridine at 25° for 10 h, treated with 270.2 g 1-hydroxy-1,2,3-benzotriazole for 1 h until dissoln., treated at  $\leq 10^\circ$  with a solution of 412.6 g dicyclohexylcarbodiimide in 400 g N-methyl-2-pyrrolidone over about 20 min, kept at 25° for 3 h, and treated with 129.39 g p-xylene-2,5-diamine and 4.73 g  $\gamma$ -glycidyloxypropyltrimethoxysilane at 30° for 5 h to obtain a polymer which (100 g) was then dissolved in 200 g N-methyl-2-pyrrolidone, treated with methylhydroquinone 0.1, N-phenylglycine 5, 1-phenyl-5-mercapto-1H-tetrazole 1, 3-(2-benzimidazolyl)-7-diethylaminocoumarin 0.5, and tetraethylene glycol dimethacrylate 10 g, spin-coated on a silicon wafer to give a 9  $\mu\text{m}$ -thick coating that can be

exposed and developed to a pattern of 7  $\mu$ m resolution

ST polyimide photoresist high resolu adhesion; epoxy silane coupler

IT Coupling agents

Photoresists  
(manufacture of **photosensitive** resin compns. forming high-resolution patterns with excellent adhesion)

IT Polyimides, preparation  
Polyimides, preparation  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polyamide-; manufacture of **photosensitive** resin compns. forming high-resolution patterns with excellent adhesion)

IT Polyamides, preparation  
Polyamides, preparation  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polyimide-; manufacture of **photosensitive** resin compns. forming high-resolution patterns with excellent adhesion)

IT Epoxides  
RL: MOA (Modifier or additive use); USES (Uses)  
(silyl; manufacture of **photosensitive** resin compns. forming high-resolution patterns with excellent adhesion)

IT 190967-75-0P 191098-18-7P 191098-19-8P 191098-20-1P 191098-22-3P  
191098-23-4P 191098-25-6P 191098-38-1P **191098-45-0P**  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(manufacture of **photosensitive** resin compns. forming high-resolution patterns with excellent adhesion)

IT 103-01-5, N-Phenylglycine 2530-83-8, 3-Glycidoxypropyltrimethoxysilane  
2897-60-1 24561-48-6 27425-55-4, 3-(2-Benzimidazolyl)-7-(diethylamino)coumarin 190967-80-7  
RL: MOA (Modifier or additive use); USES (Uses)  
(manufacture of **photosensitive** resin compns. forming high-resolution patterns with excellent adhesion)

IT **191098-45-0P**  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(manufacture of **photosensitive** resin compns. forming high-resolution patterns with excellent adhesion)

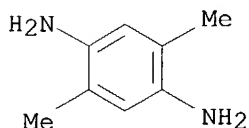
RN 191098-45-0 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, diester with 1,2,3-propanetriol, polymer with [5,5'-biisobenzofuran]-1,1',3,3'-tetrone, 5,5'-carbonylbis[1,3-isobenzofurandione], 2,5-dimethyl-1,4-benzenediamine, N,N'-methanetetraylbis[cyclohexanamine] and oxybis(2,1-ethanedioxy-2,1-ethanediyl) bis(2-methyl-2-propenoate) (9CI) (CA INDEX NAME)

CM 1

CRN 6393-01-7

CMF C8 H12 N2

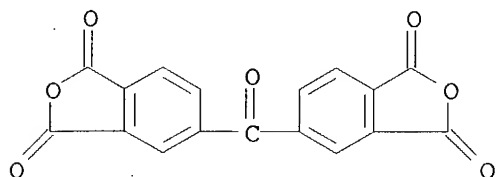




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CRN 2421-28-5

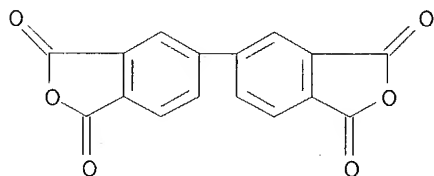
CMF C17 H6 O7



CM 3

CRN 2420-87-3

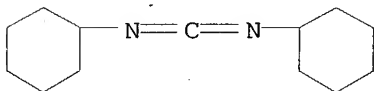
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CRN 538-75-0

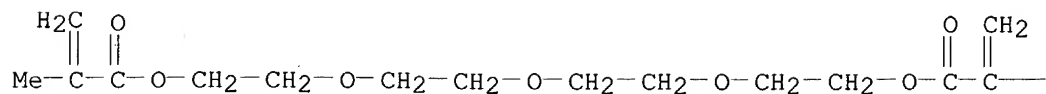
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CM 5

CRN 109-17-1

CMF C16 H26 O7



PAGE 1-A

PAGE 1-B

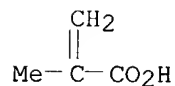
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CM 6

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CMF C11 H16 O5  
CCI IDS

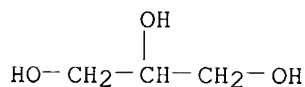
CM 7

CRN 79-41-4  
CMF C4 H6 O2



CM 8

CRN 56-81-5  
CMF C3 H8 O3



L52 ANSWER 15 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN  
AN 1997:435766 HCAPLUS  
DN 127:51556  
ED Entered STN: 14 Jul 1997  
TI Manufacture of **photosensitive** resin **compositions**  
forming high-resolution patterns with excellent adhesion  
IN Takeda, Naoji; Takeda, Toshiro; Makabe, Hiroaki; Sashida, Nobuyuki  
PA Sumitomo Bakelite Co., Ltd., Japan  
SO Jpn. Kokai Tokkyo Koho, 23 pp.  
CODEN: JKXXAF  
DT Patent  
LA Japanese  
IC ICM C08L079-08  
ICS C08K005-54  
CC 37-6 (Plastics Manufacture and Processing)  
Section cross-reference(s): 74, 76

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	JP 09124938	A2	19970513	JP 1995-282281	19951030

PRAI JP 1995-282281

19951030

## CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 09124938	ICM	C08L079-08
	ICS	C08K005-54

- AB The title compns. are prepared by obtaining a **photosensitive** resin by reacting 1 mol amine component comprising 0.1-5.0 mol% (R<sub>4</sub>NH)mR<sub>3</sub>Si(R<sub>23</sub>-1)(OR<sub>1</sub>)<sub>1</sub> (R<sub>1</sub>, R<sub>2</sub> = monovalent organic group; R<sub>3</sub> = mono- or divalent organic group, alkylene, R<sub>5</sub>nNHR<sub>6</sub>-; R<sub>5</sub> = monovalent organic group; R<sub>6</sub> = divalent organic group; n = 0, 1; l = 1-3; m = 0, 1; R<sub>4</sub> = H, organic group) and 95.0-99.9 mol% diamines R(NH<sub>2</sub>)<sub>2</sub> (R = divalent organic group) with 0.95-1.05 mol dicarboxylic acid component chosen from R<sub>7</sub>(CO<sub>2</sub>H)<sub>2</sub>(CO<sub>2</sub>R<sub>8</sub>)<sub>2</sub>, R<sub>9</sub>(CO<sub>2</sub>H)<sub>2</sub>(CO<sub>2</sub>R<sub>8</sub>)CO<sub>2</sub>R<sub>10</sub>, and R<sub>11</sub>(CO<sub>2</sub>H)<sub>2</sub>(CO<sub>2</sub>R<sub>10</sub>)<sub>2</sub> [R<sub>7</sub>, R<sub>9</sub>, R<sub>11</sub> = tetravalent organic group; R<sub>8</sub> = -R<sub>13</sub>(O<sub>2</sub>CCR<sub>12</sub>:CH<sub>2</sub>)p; R<sub>10</sub> = -R<sub>13</sub>(O<sub>2</sub>CCR<sub>12</sub>:CH<sub>2</sub>)q, alkyl; R<sub>12</sub> = H, Me; R<sub>13</sub> = di- to hexavalent organic group; p, q = 1-5] in a polar organic solvent in the presence of a condensing agent, then mixing with photoinitiators and/or **photosensitizers**. A suspension of 3,3',4,4'-benzophenonetetracarboxylic dianhydride 322.2, glycerol dimethacrylate 228.3, and methanol 32 g in N-methyl-2-pyrrolidone was treated with 166.1 g pyridine at 25° for 10 h, treated with 270.2 g 1-hydroxy-1,2,3-benzotriazole for 1 h until dissoln., treated at ≤10° with a solution of 412.6 g dicyclohexylcarbodiimide in 400 g N-methyl-2-pyrrolidone over about 20 min, kept at 25° for 3 h, and treated with 129.39 g p-xylene-2,5-diamine and 5.11 g N-phenyl-γ-aminopropyltrimethoxysilane at 30° for 5 h to obtain a polymer which (100 g) was then dissolved in 200 g N-methyl-2-pyrrolidone, treated with methylhydroquinone 0.1, N-phenylglycine 5, 1-phenyl-5-mercapto-1H-tetrazole 1, 3-(2-benzimidazolyl)-7-diethylaminocoumarin 0.5, and tetraethylene glycol dimethacrylate 10 g, spin-coated on a silicon wafer to give a 9 μm-thick coating that can be exposed and developed to a pattern of 7 μm resolution
- ST polyimide photoresist high resolu adhesion
- IT Silanes  
RL: MOA (Modifier or additive use); USES (Uses)  
(amino; manufacture of **photosensitive** resin compns. forming high-resolution patterns with excellent adhesion)
- IT Coupling agents  
Photoresists  
(manufacture of **photosensitive** resin compns. forming high-resolution patterns with excellent adhesion)
- IT Polyimides, preparation  
Polyimides, preparation  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polyamide-; manufacture of **photosensitive** resin compns. forming high-resolution patterns with excellent adhesion)
- IT Polyamides, preparation  
Polyamides, preparation  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polyimide-; manufacture of **photosensitive** resin compns. forming high-resolution patterns with excellent adhesion)
- IT Amines, uses  
RL: MOA (Modifier or additive use); USES (Uses)  
(silyl; manufacture of **photosensitive** resin compns. forming high-resolution patterns with excellent adhesion)
- IT 190967-75-0P 191098-18-7P 191098-19-8P 191098-20-1P 191098-21-2P

191098-22-3P 191098-23-4P 191098-24-5P 191098-25-6P  
191098-26-7P

RL: **IMF (Industrial manufacture)**; TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)  
(manufacture of **photosensitive** resin compns. forming high-resolution patterns with excellent adhesion)

IT 103-01-5, N-Phenylglycine 919-30-2 1760-24-3 3068-76-6 24561-48-6  
27425-55-4, 3-(2-Benzimidazolyl)-7-(diethylamino)coumarin 190967-80-7

RL: MOA (Modifier or additive use); USES (Uses)  
(manufacture of **photosensitive** resin compns. forming high-resolution patterns with excellent adhesion)

IT 191098-24-5P

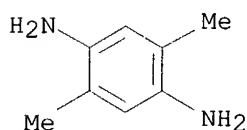
RL: **IMF (Industrial manufacture)**; TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)  
(manufacture of **photosensitive** resin compns. forming high-resolution patterns with excellent adhesion)

RN 191098-24-5 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, diester with 1,2,3-propanetriol, polymer with [5,5'-biisobenzofuran]-1,1',3,3'-tetrone, 2,5-dimethyl-1,4-benzenediamine, N,N'-methanetetraylbis[cyclohexanamine] and oxybis(2,1-ethanedioxy-2,1-ethanedioyl) bis(2-methyl-2-propenoate) (9CI) (CA INDEX NAME)

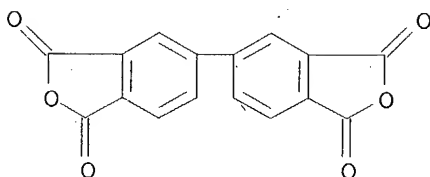
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CRN 6393-01-7  
CMF C8 H12 N2



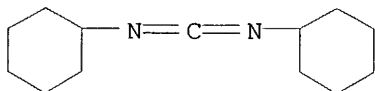
CM 2

CRN 2420-87-3  
CMF C16 H6 O6



CM 3

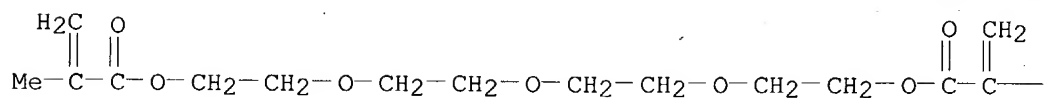
CRN 538-75-0  
CMF C13 H22 N2



CM 4

CRN 109-17-1  
CMF C16 H26 O7

PAGE 1-A



PAGE 1-B

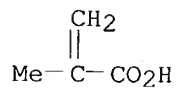
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CM 5

CRN 28497-59-8  
CMF C11 H16 O5  
CCI IDS

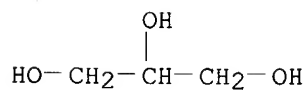
CM 6

CRN 79-41-4  
CMF C4 H6 O2



CM 7

CRN 56-81-5  
CMF C3 H8 O3



L52 ANSWER 16 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN  
 AN 1997:340888 HCAPLUS  
 DN 127:11106  
 ED Entered STN: 29 May 1997  
 TI Polyimide-based chemical ray-sensitive polymer **composition** for  
 i-ray exposure  
 IN Yumiba, Tomoyuki; Eguchi, Masuichi; Miura, Yasuo  
 PA Toray Industries, Inc., Japan  
 SO Jpn. Kokai Tokkyo Koho, 10 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 IC ICM G03F007-038  
 ICS G03F007-004; G03F007-027; G03F007-031; H01L021-027; H01L021-312  
 CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other  
 Reprographic Processes)  
 Section cross-reference(s): 38

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 09073172	A2	19970318	JP 1995-229276	19950906
PRAI	JP 1995-229276		19950906		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 09073172	ICM	G03F007-038
	ICS	G03F007-004; G03F007-027; G03F007-031; H01L021-027; H01L021-312

AB The **composition** contains a polymer having a main structural unit  
 $\text{COR1(CO2R3)nCONHR2NH}$  ( $\text{R1} = \text{C}\geq 2$  3- or 4-valent organic group;  $\text{R2} =$   
 $\text{C}\geq 2$  divalent organic group;  $\text{R3} = \text{H}$ , alkali metal ion, ammonium ion,  
 $\text{C1-30}$  organic group;  $n = 1, 2$ ), in which 10-100 mol% of  $\text{R2}$  contains aliphatic  
 hydrocarbons. The **composition** provides high-quality patterns by  
 i-ray exposure.

ST polyimide photoresist i ray exposure

IT Photoresists  
 (polyimide-based chemical ray-sensitive polymer **composition** for i-ray  
 exposure)

IT Polyimides, uses  
 RL: TEM (Technical or engineered material use); USES (Uses)  
 (polyimide-based chemical ray-sensitive polymer **composition** for i-ray  
 exposure)

IT **189292-36-2P**, Bis(3-aminopropyl)tetramethyldisiloxane-3,3',4,4'-  
 biphenyltetracarboxylic dianhydride-4,4'-methylenebis(cyclohexylamine)  
 copolymer **189292-37-3P**, Bis(3-aminopropyl)tetramethyldisiloxane-  
 3,3',4,4'-benzophenonetetracarboxylic dianhydride-4,4'-  
 methylenebis(cyclohexylamine) copolymer **189292-38-4P**,  
 Bis(3-aminopropyl)tetramethyldisiloxane-4,4'-methylenebis(cyclohexylamine)-  
 pyromellitic anhydride copolymer **189292-39-5P**,  
 Bis(3-aminopropyl)tetramethyldisiloxane-3,3',4,4'-biphenyltetracarboxylic  
 dianhydride-1,3-cyclohexanediamine copolymer **189292-40-8P**,  
 Bis(3-aminopropyl)tetramethyldisiloxane-3,3',4,4'-biphenyltetracarboxylic  
 dianhydride-1,4-cyclohexanediamine copolymer **189292-41-9P**,  
 Bis(3-aminopropyl)tetramethyldisiloxane-3,3',4,4'-  
 benzophenonetetracarboxylic dianhydride-1,3-cyclohexanediamine copolymer  
**189292-42-0P**, Bis(3-aminopropyl)tetramethyldisiloxane-3,3',4,4'-  
 benzophenonetetracarboxylic dianhydride-1,4-cyclohexanediamine copolymer  
**189292-43-1P**, 1,3-Bis(aminomethyl)cyclohexane-bis(3-

aminopropyl)tetramethyldisiloxane-3,3',4,4'-biphenyltetracarboxylic dianhydride copolymer 189292-44-2P, 1,4-Bis(aminomethyl)cyclohexane-bis(3-aminopropyl)tetramethyldisiloxane-3,3',4,4'-biphenyltetracarboxylic dianhydride copolymer 189292-45-3P, 1,3-Bis(aminomethyl)cyclohexane-bis(3-aminopropyl)tetramethyldisiloxane-3,3',4,4'-benzophenonetetracarboxylic dianhydride copolymer 189292-46-4P, 1,4-Bis(aminomethyl)cyclohexane-bis(3-aminopropyl)tetramethyldisiloxane-3,3',4,4'-benzophenonetetracarboxylic dianhydride copolymer  
 RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)

(polyimide-based chemical ray-sensitive polymer **composition** for i-ray exposure)

IT **189292-36-2P**, Bis(3-aminopropyl)tetramethyldisiloxane-3,3',4,4'-biphenyltetracarboxylic dianhydride-4,4'-methylenebis(cyclohexylamine) copolymer **189292-39-5P**, Bis(3-aminopropyl)tetramethyldisiloxane-3,3',4,4'-biphenyltetracarboxylic dianhydride-1,3-cyclohexanediamine copolymer **189292-40-8P**, Bis(3-aminopropyl)tetramethyldisiloxane-3,3',4,4'-biphenyltetracarboxylic dianhydride-1,4-cyclohexanediamine copolymer

RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)

(polyimide-based chemical ray-sensitive polymer **composition** for i-ray exposure)

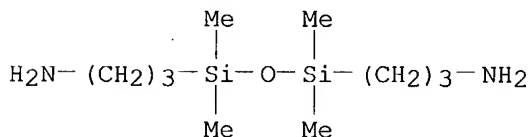
RN 189292-36-2 HCAPLUS

CN [5,5'-Biisobenzofuran]-1,1',3,3'-tetrone, polymer with 4,4'-methylenebis[cyclohexanamine] and 3,3'-(1,1,3,3-tetramethyl-1,3-disiloxanediy)bis[1-propanamine] (9CI) (CA INDEX NAME)

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CRN 2469-55-8

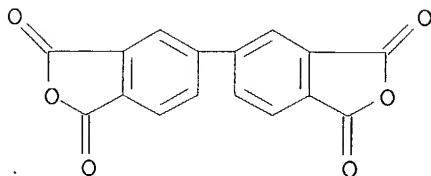
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CM 2

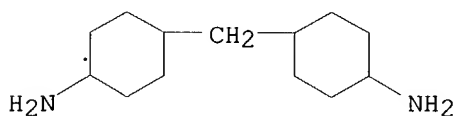
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CMF C16 H6 O6



CM 3

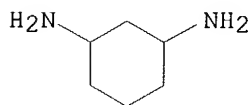
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CMF C13 H26 N2



RN 189292-39-5 HCAPLUS  
CN [5,5'-Biisobenzofuran]-1,1',3,3'-tetrone, polymer with  
1,3-cyclohexanediamine and 3,3'-(1,1,3,3-tetramethyl-1,3-  
disiloxanediyl)bis[1-propanamine] (9CI) (CA INDEX NAME)

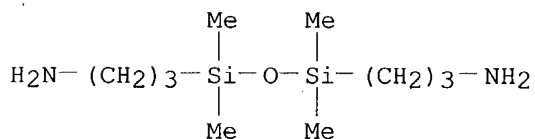
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CRN 3385-21-5  
CMF C6 H14 N2



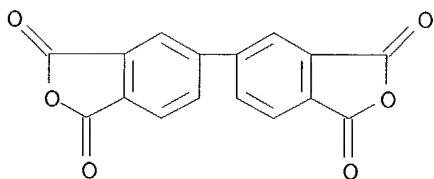
CM 2

CRN 2469-55-8  
CMF C10 H28 N2 O Si2



CM 3

CRN 2420-87-3  
CMF C16 H6 O6



RN 189292-40-8 HCAPLUS  
CN [5,5'-Biisobenzofuran]-1,1',3,3'-tetrone, polymer with  
1,4-cyclohexanediamine and 3,3'-(1,1,3,3-tetramethyl-1,3-

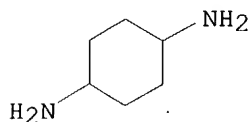


disiloxanediyl)bis[1-propanamine] (9CI) (CA INDEX NAME)

CM 1

CRN 3114-70-3

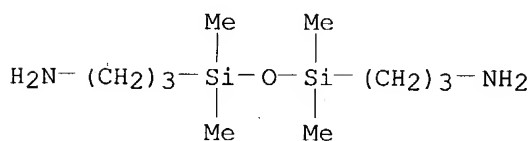
CMF C6 H14 N2



CM 2

CRN 2469-55-8

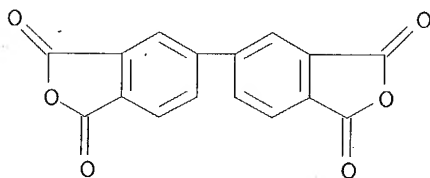
CMF C10 H28 N2 O Si2



CM 3

CRN 2420-87-3

CMF C16 H6 O6



L52 ANSWER 17 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN  
 AN 1996:321160 HCAPLUS  
 DN 125:45119  
 ED Entered STN: 04 Jun 1996  
 TI Radiation-sensitive resin **compositions**  
 IN Sakurai, Akihiko; Niwa, Kazuaki; Fujiwara, Hideetsu  
 PA Japan Synthetic Rubber Co Ltd, Japan  
 SO Jpn. Kokai Tokkyo Koho, 12 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 IC ICM G03F007-039  
 ICS C08F002-48; C08L079-08; C09D179-08; G03F007-004; H01L021-027  
 CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other

## Reprographic Processes)

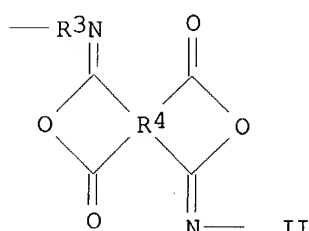
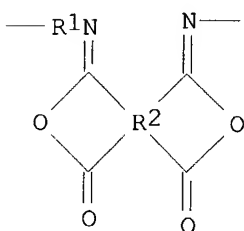
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 08044062	A2	<u>19960216</u>	JP 1994-181660	19940802
PRAI	JP 1994-181660		<u>19940802</u>		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 08044062	ICM	G03F007-039
	ICS	C08F002-48; C08L079-08; C09D179-08; G03F007-004; H01L021-027

GI



- AB The title compns. contain a polyisoimide having main structural units I and/or II (R1, R3 = divalent group having divalent alicyclic group or organosiloxane skeleton; R2, R4 = tetraivalent organic group) and a compound that shows acid upon radiation irradiation The compns. provide high-contrast patterned films with good thermal resistance and elec. and mech. properties able to be used as insulating materials. Thus, a radiation-sensitive resin **composition** comprised a polyisoimide prepared by reaction of a polyamic acid from diaminodicyclohexyl methane and 3,3',4,4'-benzophenonetetracarboxylic dianhydride with Ac2O and 2,3,4-trihydroxybenzophenone 1,2-naphthoquinonediazido-5-sulfonate.
- ST polyisoimide radiation sensitive resin **compn**; acid generating agent radiation **compn**
- IT Polyamic acids  
 RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
 (radiation-sensitive resin compns. containing polyisoimides and acid generators for pattern formation)
- IT Polyimides, preparation  
 RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (radiation-sensitive resin compns. containing polyisoimides and acid generators for pattern formation)
- IT Resists  
 (photo-, radiation-sensitive resin compns. containing polyisoimides and acid generators for pattern formation)
- IT **68510-93-0**, 2,3,4-Trihydroxybenzophenone 1,2-naphthoquinonediazido-5-sulfonate **107761-81-9**, 2,3,4,4'-Tetrahydroxybenzophenone 1,2-naphthoquinonediazido-5-sulfonate **177837-57-9**  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (acid generator; radiation-sensitive resin compns. containing polyisoimides and acid generators for pattern formation)
- IT 108-24-7, Acetic anhydride  
 RL: NUU (Other use, unclassified); USES (Uses)

(isoimidation agent; radiation-sensitive resin compns. containing polyisoimides and acid generators for pattern formation)

IT 56777-96-9DP, isoimidation products 56778-02-0DP, isoimidation products 120217-98-3DP, 3,3',4,4'-Biphenyltetracarboxylic dianhydride-4,4'-diaminodicyclohexyl methane copolymer, isoimidation products 141504-54-3DP, isoimidation products 161865-37-8DP, isoimidation products

RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)

(radiation-sensitive resin compns. containing polyisoimides and acid generators for pattern formation)

IT 68510-93-0, 2,3,4-Trihydroxybenzophenone 1,2-naphthoquinonediazido-5-sulfonate 107761-81-9, 2,3,4,4'-Tetrahydroxybenzophenone 1,2-naphthoquinonediazido-5-sulfonate 177837-57-9

RL: MOA (Modifier or additive use); USES (Uses)

(acid generator; radiation-sensitive resin compns. containing polyisoimides and acid generators for pattern formation)

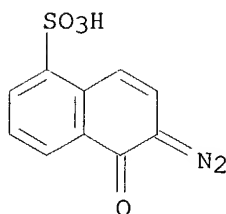
RN 68510-93-0 HCAPLUS

CN 1-Naphthalenesulfonic acid, 6-diazo-5,6-dihydro-5-oxo-, ester with phenyl(2,3,4-trihydroxyphenyl)methanone (9CI) (CA INDEX NAME)

CM 1

CRN 20546-03-6

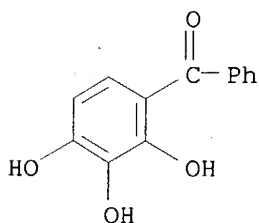
CMF C10 H6 N2 O4 S



CM 2

CRN 1143-72-2

CMF C13 H10 O4

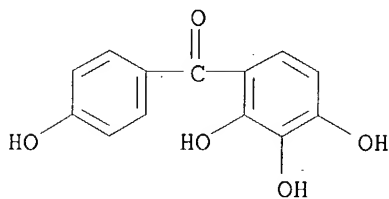


RN 107761-81-9 HCAPLUS

CN 1-Naphthalenesulfonic acid, 6-diazo-5,6-dihydro-5-oxo-, ester with (4-hydroxyphenyl)(2,3,4-trihydroxyphenyl)methanone (9CI) (CA INDEX NAME)

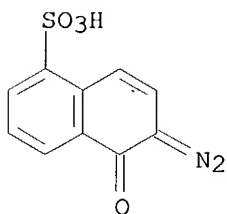
CM 1

CRN 31127-54-5  
CMF C13 H10 O5

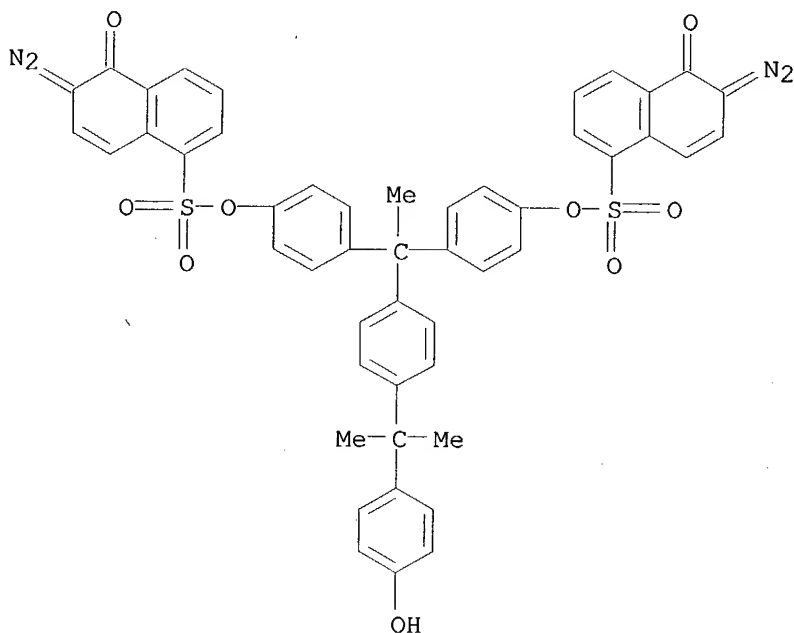


CM 2

CRN 20546-03-6  
CMF C10 H6 N2 O4 S



RN 177837-57-9 HCAPLUS  
CN 1-Naphthalenesulfonic acid, 6-diazo-5,6-dihydro-5-oxo-,  
[1-[4-[1-(4-hydroxyphenyl)-1-methylethyl]phenyl]ethylidene]di-4,1-  
phenylene ester (9CI) (CA INDEX NAME)

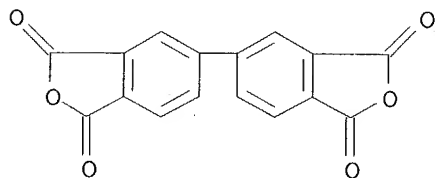


IT 120217-98-3DP, 3,3',4,4'-Biphenyltetracarboxylic dianhydride-4,4'-diaminodicyclohexyl methane copolymer, isoimidation products  
 RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)  
 (radiation-sensitive resin compns. containing polyisoimides and acid generators for pattern formation)  
 RN 120217-98-3 HCAPLUS  
 CN [5,5'-Biisobenzofuran]-1,1',3,3'-tetrone, polymer with 4,4'-methylenebis[cyclohexanamine] (9CI) (CA INDEX NAME)

CM 1

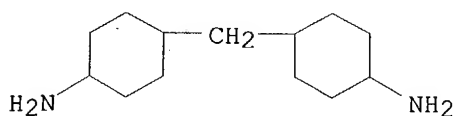
CRN 2420-87-3  
 CMF C16 H6 O6

Y



CM 2

CRN 1761-71-3  
 CMF C13 H26 N2



L52 ANSWER 18 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN  
 AN 1995:896921 HCAPLUS  
 DN 124:18520  
 ED Entered STN: 04 Nov 1995  
 TI Polyamic acid-containing **composition**, polyimide orientation film  
 obtained from it for holding liquid crystal, manufacture of the film,  
 liquid crystal-holding substrate, and liquid-crystal display element  
 IN Odagiri, Hiroyuki; Okuda, Naoki; Kawakami, Masahiro  
 PA Hitachi Chemical Co Ltd, Japan  
 SO Jpn. Kokai Tokkyo Koho, 4 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 IC ICM G02F001-1337  
 ICS C08G073-10; C08K005-09; C08K005-17; C08L079-08  
 CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other  
 Reprographic Processes)  
 Section cross-reference(s): 38

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 07218920	A2	19950818	JP 1994-7606	19940127
PRAI	JP 1994-7606		19940127		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 07218920	ICM	G02F001-1337
	ICS	C08G073-10; C08K005-09; C08K005-17; C08L079-08

AB The **composition** contains a polyamic acid obtained from (1) a C7-9 bicyclic aliphatic hydrocarbon group (derivative)-containing diamine in which  $\geq 3$  atoms are shared, (2) an aromatic tetracarboxylic dianhydride, and optionally (3) another diamine. The film is manufactured by applying the **composition** on a liquid crystal-holding substrate via an electrode, drying, and dehydration-ring-closing to form a polyimide layer, and rubbing. The film and the substrate are also claimed. The display element comprises a liquid crystal-holding substrate which has an electrode at the side facing to liquid crystals and which is surface-coated with the orientation film. The film is useful for manufacture of STN liquid crystal display elements.

ST polyamic acid dehydration cyclization polyimide film; orientation film  
 polyimide liq crystal holding; display element liq crystal polyimide film

IT Polyimides, preparation

RL: DEV (Device component use); IMF (Industrial manufacture); TEM  
 (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (liquid-crystal display elements)

IT Polyamic acids

RL: IMF (Industrial manufacture); RCT (Reactant); TEM (Technical or  
 engineered material use); PREP (Preparation); RACT (Reactant or reagent);  
 USES (Uses)

(preparation and dehydration cyclization of; liquid-crystal display  
 elements)

IT Optical imaging devices  
(liquid-crystal, electrooptical; polyimide orientation film manufactured from bicyclic polyamic acid-containing composition)

IT 171065-87-5P 171065-90-0P  
RL: DEV (Device component use); IMF (Industrial manufacture);  
TEM (Technical or engineered material use); PREP (Preparation);  
USES (Uses)  
(liquid-crystal display element)

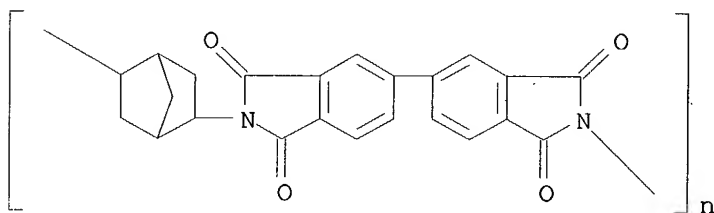
IT 171065-88-6P  
RL: DEV (Device component use); IMF (Industrial manufacture);  
TEM (Technical or engineered material use); PREP (Preparation);  
USES (Uses)  
(preparation and dehydration cyclization of; liquid-crystal display element)

IT 171263-34-6P  
RL: IMF (Industrial manufacture); RCT (Reactant); TEM (Technical or engineered material use); PREP (Preparation); RACT (Reactant or reagent);  
USES (Uses)  
(preparation and dehydration cyclization of; liquid-crystal display element)

IT 171065-87-5P  
RL: DEV (Device component use); IMF (Industrial manufacture);  
TEM (Technical or engineered material use); PREP (Preparation);  
USES (Uses)  
(liquid-crystal display element)

RN 171065-87-5 HCAPLUS

CN Poly[(1,1',3,3'-tetrahydro-1,1',3,3'-tetraoxo[5,5'-bi-2H-isoindole]-2,2'-diyl)bicyclo[2.2.1]heptane-2,5-diyl] (9CI) (CA INDEX NAME)



IT 171065-88-6P  
RL: DEV (Device component use); IMF (Industrial manufacture);  
TEM (Technical or engineered material use); PREP (Preparation);  
USES (Uses)  
(preparation and dehydration cyclization of; liquid-crystal display element)

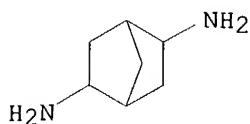
RN 171065-88-6 HCAPLUS

CN [5,5'-Biisobenzofuran]-1,1',3,3'-tetrone, polymer with bicyclo[2.2.1]heptane-2,5-diamine (9CI) (CA INDEX NAME)

CM 1

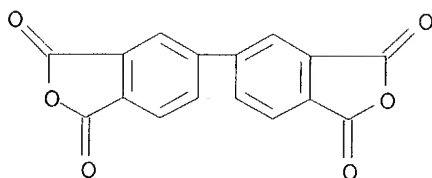
CRN 171065-84-2

CMF C7 H14 N2



CM 2

CRN 2420-87-3  
CMF C16 H6 O6



L52 ANSWER 19 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN  
AN 1995:531974 HCAPLUS  
DN 122:267436  
ED Entered STN: 09 May 1995  
TI Electric circuit structures having **photosensitive** heat-resistant polyimide **compositions** for surface protection,  $\alpha$ -ray shielding, or insulation and manufacture thereof  
IN Yoshikawa, Haruhiko; Kataoka, Fumio; Shoji, Fusaji; Obara, Isao; Tanaka, Jun  
PA Hitachi Ltd, Japan  
SO Jpn. Kokai Tokkyo Koho, 36 pp.  
CODEN: JKXXAF  
DT Patent  
LA Japanese  
IC ICM H01L021-90  
ICS H01L021-312  
CC 38-3 (Plastics Fabrication and Uses)  
Section cross-reference(s): 74, 76

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 06181264	A2	19940628	JP 1992-332714	19921214
PRAI	JP 1992-332714		19921214		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 06181264	ICM	H01L021-90
	ICS	H01L021-312

AB The title cured comps. are formed from 100 parts polymers of main repeating unit  $-\text{COR}_1(\text{CO}_2\text{H})_2\text{CONHR}_2\text{NH}-$  ( $\text{R}_1 = \text{C} \geq 4$  tetravalent organic group;  $\text{R}_2 = \text{arom ring or Si-containing divalent organic group}$ ), 0.1-100 parts aromatic **diazide** photocrosslinking agent, 1-400 parts unsatd. amine, and 0.5-50 parts sulfonamide  $\text{R}_3\text{SO}_2\text{NHR}_4$ ,  $\text{R}_3\text{SO}_2\text{NR}_4$ , or  $\text{R}_3\text{SO}_2\text{NHR}_5\text{NHSO}_2\text{R}_4$  ( $\text{R}_3 = \text{aromatic or alkyl group}$ ;  $\text{R}_4 = \text{H, aromatic group, alkyl group}$ ;  $\text{R}_5 = \text{alkylene, aromatic ring-containing divalent organic group}$ ), and



- optionally **photosensitizer**. A polyamic acid prepared from 4,4'-diaminodiphenyl ether and 3,3',4,4'-biphenyltetracarboxylic acid dianhydride in N-methyl-2-pyrrolidone was treated with 2,6-bis(p-azidobenzal)-4-carboxycyclohexanone, 3-(dimethylamino)propyl methacrylate, and p-toluenesulfonylanilide, spin-coated on a Si wafer, exposed, developed with aqueous N-methyl-2-pyrrolidone, rinsed with iso-PrOH, and baked at 400° for 30 min to give a polyimide film with weight loss initiation temperature 450° and elongation 12%.
- ST polyimide elec circuit structure; elec insulator polyimide heat resistant; photoresist polyimide heat resistant; azid **photosensitizer**
- IT polyimide photoresist
- IT Coating materials
- Electric insulators and Dielectrics  
(elec. circuit structures having **photosensitive** heat-resistant polyimide compns. for surface protection,  $\alpha$ -ray shielding, or insulation and manufacture thereof)
- IT **Azides**  
RL: CAT (Catalyst use); USES (Uses)  
(elec. circuit structures having **photosensitive** heat-resistant polyimide compns. for surface protection,  $\alpha$ -ray shielding, or insulation and manufacture thereof)
- IT Polyamic acids  
Polyimides, uses  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(elec. circuit structures having **photosensitive** heat-resistant polyimide compns. for surface protection,  $\alpha$ -ray shielding, or insulation and manufacture thereof)
- IT Resists  
(photo-, elec. circuit structures having **photosensitive** heat-resistant polyimide compns. for surface protection,  $\alpha$ -ray shielding, or insulation and manufacture thereof)
- IT Crosslinking catalysts  
(photochem., elec. circuit structures having **photosensitive** heat-resistant polyimide compns. for surface protection,  $\alpha$ -ray shielding, or insulation and manufacture thereof)
- IT Siloxanes and Silicones, uses  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(polyimide-, elec. circuit structures having **photosensitive** heat-resistant polyimide compns. for surface protection,  $\alpha$ -ray shielding, or insulation and manufacture thereof)
- IT Polyimides, uses  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(siloxane-, elec. circuit structures having **photosensitive** heat-resistant polyimide compns. for surface protection,  $\alpha$ -ray shielding, or insulation and manufacture thereof)
- IT 105-16-8 2867-47-2 10369-88-7, 2-(Diethylamino)ethyl cinnamate  
14128-15-5, 4,4'-Diazidochalcone 18526-07-3, 3-(Dimethylamino)propyl  
acrylate 20602-77-1 20602-93-1 42759-78-4, 2,6-Bis(p-azidobenzal)-4-  
hydroxycyclohexanone 60283-41-2 85179-70-0 85179-71-1,  
2,6-Bis(p-azidobenzal)-4-carboxycyclohexanone 90861-20-4 93664-30-3  
100453-32-5 121040-35-5 162843-51-8 162843-52-9 162843-53-0  
162843-54-1 162843-55-2 162843-56-3 162843-57-4 162843-61-0  
162843-62-1 162843-63-2 162843-64-3 162843-65-4 162878-85-5  
RL: CAT (Catalyst use); USES (Uses)  
(elec. circuit structures having **photosensitive** heat-resistant polyimide compns. for surface protection,  $\alpha$ -ray

shielding, or insulation and manufacture thereof)  
 IT 25085-92-1P 26298-81-7P, 3,3',4,4'-Biphenyltetracarboxylic acid dianhydride-4,4'-diaminodiphenyl ether copolymer 26615-45-2P, 3,3',4,4'-Biphenyltetracarboxylic acid dianhydride-4,4'-diaminodiphenyl ether copolymer, sru 64427-99-2P 72344-77-5P 72356-21-9P 84329-59-9P 91415-39-3P 96926-37-3P 96926-75-9P 98847-60-0P 98866-21-8P 100630-67-9P 111898-27-2P 113735-83-4P 113742-50-0P 113742-51-1P 117247-38-8P 121509-62-4P 142007-33-8P 162843-46-1P 162843-47-2P 162843-48-3P 162843-49-4P **162843-50-7P** 162843-60-9P

RL: **IMF (Industrial manufacture)**; TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)

(elec. circuit structures having **photosensitive** heat-resistant polyimide compns. for surface protection,  $\alpha$ -ray shielding, or insulation and manufacture thereof)

IT 68-34-8, p-Toluenesulfonylanilide 70-55-3, p-Toluenesulfonamide 80-39-7, N-Ethyl-p-toluenesulfonamide 90-93-7, 4,4'-Bis(diethylamino)benzophenone 98-10-2, Benzenesulfonamide 602-87-9, 5-Nitroacenaphthene 649-15-0, N,N-Diethyl-p-toluenesulfonamide 723-42-2, N,N-Dipropyl-p-toluenesulfonamide 1150-26-1 1907-65-9, N-Butyl-p-toluenesulfonamide 41595-29-3 53364-99-1 56934-07-7 63226-13-1, 3,3'-Carbonylbis(7-diethylaminocoumarin) 71868-10-5, 2-Methyl-1-[4-(methylthio)phenyl]-2-morpholinopropan-1-one 74043-79-1 115166-68-2 117964-11-1 162843-45-0 162843-58-5 162843-59-6

RL: MOA (Modifier or additive use); USES (Uses)

(elec. circuit structures having **photosensitive** heat-resistant polyimide compns. for surface protection,  $\alpha$ -ray shielding, or insulation and manufacture thereof)

IT 12587-46-1, Alpha ray

RL: MSC (Miscellaneous)

(elec. circuit structures having **photosensitive** heat-resistant polyimide compns. for surface protection,  $\alpha$ -ray shielding, or insulation and manufacture thereof)

IT **162843-50-7P**

RL: **IMF (Industrial manufacture)**; TEM (Technical or engineered material use); **PREP (Preparation)**; USES (Uses)

(elec. circuit structures having **photosensitive** heat-resistant polyimide compns. for surface protection,  $\alpha$ -ray shielding, or insulation and manufacture thereof)

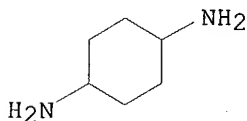
RN 162843-50-7 HCAPLUS

CN [5,5'-Biisobenzofuran]-1,1',3,3'-tetrone, polymer with 1,4-cyclohexanediamine and 4,4'-oxybis[benzenamine] (9CI) (CA INDEX NAME)

CM 1

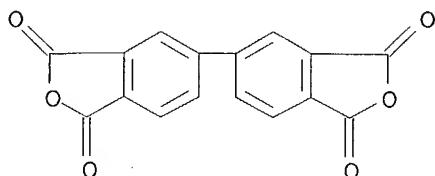
CRN 3114-70-3

CMF C6 H14 N2



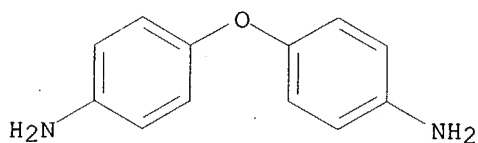
CM 2

CRN 2420-87-3  
CMF C16 H6 O6



CM 3

CRN 101-80-4  
CMF C12 H12 N2 O



L52 ANSWER 20 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN  
AN 1994:90864 HCAPLUS  
DN 120:90864  
ED Entered STN: 19 Feb 1994  
TI **Photosensitive resin composition**  
IN Hagiwara, Hideo; Kaji, Makoto; Nishizawa, Hiroshi; Suzuki, Kenji; Kojima, Yasunori  
PA Hitachi Chemical Co., Ltd., Japan  
SO Ger. Offen., 51 pp.  
CODEN: GWXXBX  
DT Patent  
LA German  
IC ICM C07C275-40  
ICS C08G073-10; C08G077-455; C08G073-16; G03F007-039  
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
Section cross-reference(s): 35

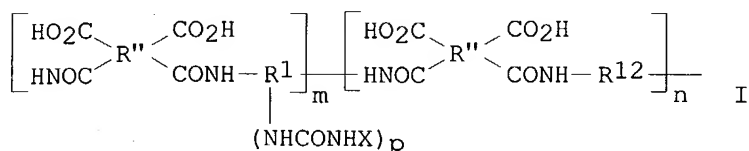
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 4301446	A1	19930722	DE 1993-4301446	19930120
	DE 4301446	C2	19990930		
	JP 05301959	A2	19931116	JP 1992-298560	19921109
	JP 3047647	B2	20000529		
	US 5472823	A	19951205	US 1993-5210	19930115
	US 5668248	A	19970916	US 1995-517583	19950822
	US 5847071	A	19981208	US 1997-843860	19970417
PRAI	JP 1992-7467	A	19920120		
	JP 1992-298560	A	19921109		
	US 1993-5210	A3	19930115		
	US 1995-517583	A3	19950822		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
DE 4301446	ICM	C07C275-40
	ICS	C08G073-10; C08G077-455; C08G073-16; G03F007-039
US 5472823	ECLA	C07C275/40; C08G073/10K; C08G073/10N; C08G073/10N1; G03F007/038P

OS MARPAT 120:90864  
GI



AB The title material comprises a polyimidazopyrrolo resin or a polyimidazopyrroloimide resin which are obtained by dehydration alc. elimination from a poly-amino acid resin I [X = **photosensitive** group; R1 = (2 + p)-valent organic group; R11 = tetravalent organic group; R12 = divalent organic group; p = 1-12; m, n = mol number; m/n = 1/00 - 100/0] or its ester. The poly-amino acid resins are obtained by condensation of a diamino compound (H2N)2R1(NHCONCX)<sub>p</sub> (II) with a tetracarboxylic acid anhydride. The compds. II can be produced by reacting an isocyanate compound containing ≥1 vinyl group with a poly-amino compound. The **composition** has improved developability and produces films with improved solidity.

ST **photosensitive compn** film solidity; polyimide polyamic acid polyimidazopyrrolo compd

IT Polyamic acids  
Polyimides, uses  
RL: USES (Uses)  
(**photosensitive composition** containing)

IT Photoimaging **compositions** and processes  
(polyimidazopyrrolo compds. in)

IT Printing plates  
(relief, **photosensitive** resins for)

IT 91-95-2, [1,1'-Biphenyl]-3,3',4,4'-tetramine 615-71-4,  
1,2,4-Benzenetriamine 2676-59-7 6264-66-0 17828-45-4,  
[1,1'-Biphenyl]-3,4,4'-triamine 51532-46-8 151668-80-3 151668-81-4  
151668-82-5 151668-83-6 151668-84-7 151668-85-8 151668-86-9  
RL: USES (Uses)  
(**photosensitive** resins prepared from)

IT 97273-92-2P 151668-78-9P 151668-79-0P 152640-40-9P  
RL: RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(preparation and polymerization of, for **photosensitive composition**)

IT 152636-50-5P 152636-51-6P 152636-52-7P 152636-53-8P 152640-88-5P  
152640-89-6P 152679-08-8P 152679-09-9P 152679-10-2P 152679-11-3P  
152679-12-4P 152698-22-1P 152698-23-2P  
RL: SPN (**Synthetic preparation**); PREP (**Preparation**)  
(preparation and use of, in **photosensitive composition**)

IT 152698-22-1P 152698-23-2P  
RL: SPN (**Synthetic preparation**); PREP (**Preparation**)  
(preparation and use of, in **photosensitive composition**)

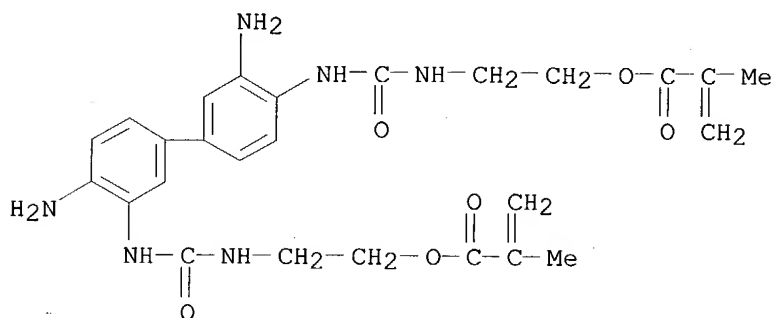
RN 152698-22-1 HCAPLUS

CN [1,1'-Biphenyl]-3,3',4,4'-tetracarboxylic acid, ar,ar'-dimethyl ester,

polymer with (3',4'-diamino[1,1'-biphenyl]-3,4'-diyl)bis(iminocarbonylimino-2,1-ethanediyl) bis(2-methyl-2-propenoate), N,N'-methanetetraylbis[cyclohexanamine] and 4,4'-oxybis[benzenamine] (9CI) (CA INDEX NAME)

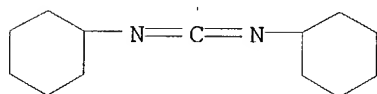
CM 1

CRN 151668-78-9  
CMF C26 H32 N6 O6



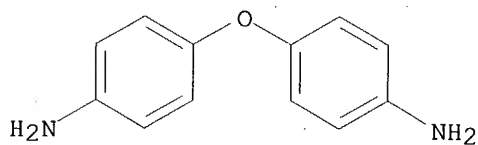
CM 2

CRN 538-75-0  
CMF C13 H22 N2



CM 3

CRN 101-80-4  
CMF C12 H12 N2 O

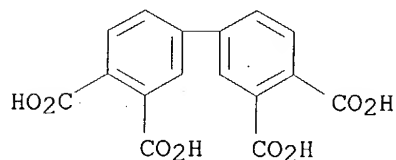


CM 4

CRN 97273-92-2  
CMF C18 H14 O8  
CCI IDS

CM 5

CRN 22803-05-0  
CMF C16 H10 O8



CM 6

CRN 67-56-1  
CMF C H4 O

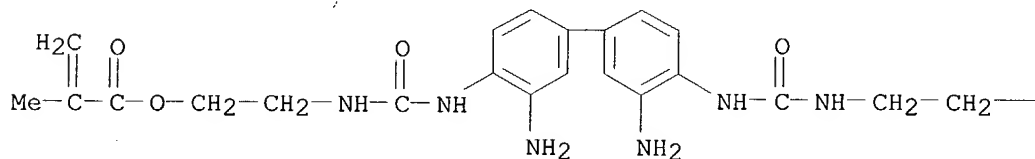
$$\text{H}_3\text{C}-\text{OH}$$

RN	152698-23-2	HCAPLUS
CN	<p>[1,1'-Biphenyl]-3,3',4,4'-tetracarboxylic acid, ar,ar'-dimethyl ester, polymer with (3,3'-diamino[1,1'-biphenyl]-4,4'-diyl)bis(iminocarbonylimino-2,1-ethanediy) bis(2-methyl-2-propenoate), N,N'-methanetetraylbis[cyclohexanamine] and 4,4'-oxybis[benzenamine] (9CI) (CA INDEX NAME)</p>	

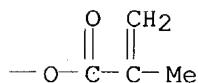
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CRN 151668-79-0  
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PAGE 1-A

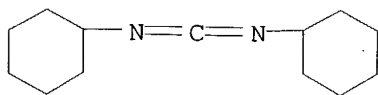


PAGE 1-B



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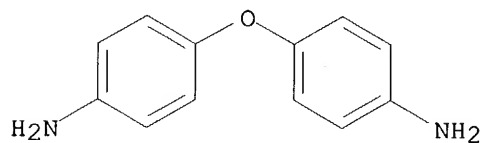
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CM 3

CRN 101-80-4

CMF C12 H12 N2 O



CM 4

CRN 97273-92-2

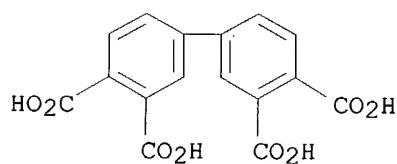
CMF C18 H14 O8

CCI IDS

CM 5

CRN 22803-05-0

CMF C16 H10 O8



CM 6

CRN 67-56-1

CMF C H4 O

H<sub>3</sub>C-OH

L52 ANSWER 21 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN  
 AN 1989:182969 HCAPLUS  
 DN 110:182969  
 ED Entered STN: 12 May 1989  
 TI Polyamic acid-based photoresist **compositions**

KATHLEEN FULLER EIC 1700 REMSEN 4B28 571/272-2505

IN Kataoka, Fumio; Tanaka, Jun; Shoji, Fusaji; Kojima, Mitsumasa  
 PA Hitachi, Ltd., Japan; Hitachi Chemical Co., Ltd.  
 SO Jpn. Kokai Tokkyo Koho, 11 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 IC ICM G03C001-68  
 ICS G03C001-68  
 CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other  
 Reprographic Processes)  
 Section cross-reference(s): 35

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 63155141	A2	19880628	JP 1986-301671	19861219
	JP 2559720	B2	19961204		
PRAI	JP 1986-301671		19861219		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
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JP 63155141	ICM	G03C001-68
	ICS	G03C001-68

AB The title compns. useful in electronic devices requiring final film thickness >10  $\mu\text{m}$  contain polyamic acid of mainly -COR1(CO2H)2CONHR2NH-units (R1 = aromatic group; R2 = aliphatic group), unsatd. amines, and **photosensitizers** or photochem. crosslinkers. A solution of 21 g bis(4-aminocyclohexyl)methane in 128 g DMFI was stirred with 21.8 g pyromellitic dianhydride at 50-60° for 5 h to give a polyamic acid solution of viscosity 45 P at 25°. In 17 g of this solution were dissolved 2.42 g 3-(dimethylamino)propyl methacrylate and 0.28 g 2,6-bis(4-azidobenzal)-4-carboxycyclohexanone, and the resulting solution was filtered, spin-coated on a Si wafer, dried, exposed to UV (8 mW/cm<sup>2</sup>, 365 nm) via a photomask of 50  $\mu\text{m}$ -width stripe pattern, developed with 4:1 (volume) N-methyl-2-pyrrolidone-EtOH, and heated at 200° for 30 min then 250° for 60 min to give a neg. relief pattern of final thickness 18  $\mu\text{m}$ .

ST polyamic acid high build photoresist; polyimide high build photoresist; aliph arom polyamic acid photoresist; unsatd amine polyamic acid photoresist; **azide** photocrosslinker polyamic acid photoresist; aminopropyl methacrylate polyamic acid photoresist

IT Polyamides, preparation

RL: PROC (Process)

(aliphatic-aromatic, manufacture of, for high-build photoresists)

IT Polyamic acids

RL: PROC (Process)

(aromatic, manufacture of, for high-build photoresists)

IT Resists

(photo-, aliphatic-aromatic polyamic acid-based, high-build)

IT 2867-47-2 20602-77-1, 3-(Dimethylamino)propyl methacrylate 93664-30-3

RL: USES (Uses)

(in aliphatic-aromatic polyamic acid-based photoresists, high-build)

IT 87765-17-1P 116042-39-8P 120199-30-6P 120199-32-8P

120217-98-3P 120217-99-4P 120218-00-0P

120218-01-1P 120218-21-5P 127119-56-6P 150769-58-7P

150769-58-7P 150769-63-4P

RL: PREP (Preparation)

(manufacture of, for photoresists, high-build)

IT 90-94-8 18127-87-2 85179-71-1 120215-65-8

RL: USES (Uses)



(photosensitizers, in aliphatic-aromatic polyamic acid-based photoresists, high-build)

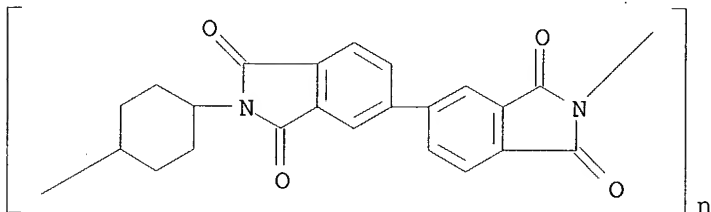
IT 120199-30-6P 120217-98-3P 120217-99-4P  
120218-00-0P 120218-21-5P

RL: PREP (Preparation)

(manufacture of, for photoresists, high-build)

RN 120199-30-6 HCAPLUS

CN Poly[(1,1',3,3'-tetrahydro-1,1',3,3'-tetraoxo[5,5'-bi-2H-isoindole]-2,2'-diyl)-1,4-cyclohexanediyl] (9CI) (CA INDEX NAME)



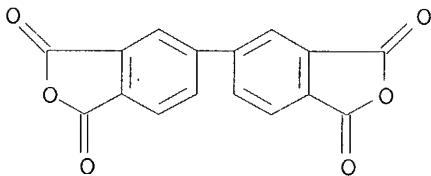
RN 120217-98-3 HCAPLUS

CN [5,5'-Biisobenzofuran]-1,1',3,3'-tetrone, polymer with 4,4'-methylenebis[cyclohexanamine] (9CI) (CA INDEX NAME)

CM 1

CRN 2420-87-3

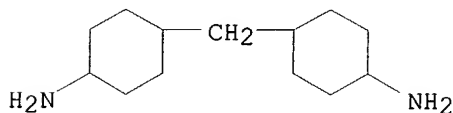
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CM 2

CRN 1761-71-3

CMF C13 H26 N2



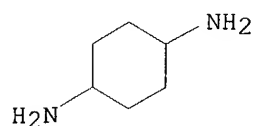
RN 120217-99-4 HCAPLUS

CN [5,5'-Biisobenzofuran]-1,1',3,3'-tetrone, polymer with 1,4-cyclohexanediamine (9CI) (CA INDEX NAME)

CM 1

CRN 3114-70-3

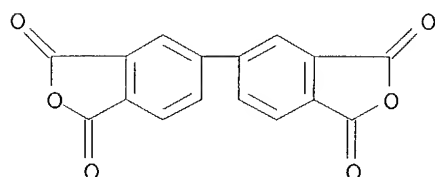
CMF C6 H14 N2



CM 2

CRN 2420-87-3

CMF C16 H6 O6



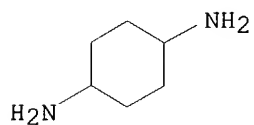
RN 120218-00-0 HCAPLUS

CN [5,5'-Biisobenzofuran]-1,1',3,3'-tetrone, polymer with  
1,4-cyclohexanediamine and 4,4'-methylenebis[cyclohexanamine] (9CI) (CA  
INDEX NAME)

CM 1

CRN 3114-70-3

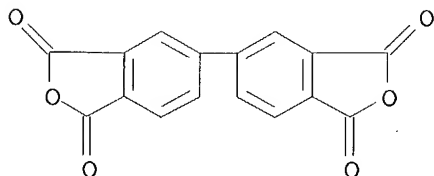
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CM 2

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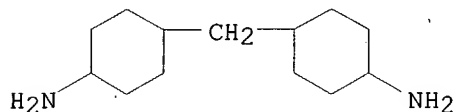
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CM 3

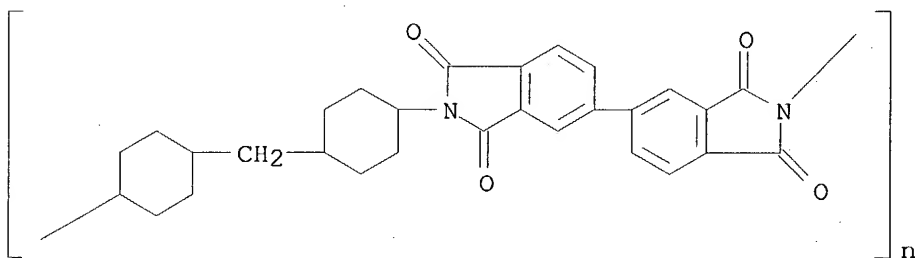
CRN 1761-71-3

CMF C13 H26 N2



RN 120218-21-5 HCAPLUS

CN Poly[(1,1',3,3'-tetrahydro-1,1',3,3'-tetraoxo[5,5'-bi-2H-isoindole]-2,5'-diyl)-1,4-cyclohexanediylmethylene-1,4-cyclohexanediyl] (9CI) (CA INDEX NAME)



=>

=>

IT Phenoxy resins  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (polyester-; polyester hydroxy ether terpolymers from lactide and  
 bisphenol-A derivs.)

IT 1100-88-5, Benzyltriphenylphosphonium chloride 1643-19-2,  
 Tetrabutylammonium bromide 4736-60-1, Ethyltriphenylphosphonium iodide  
 17455-13-9, 18-Crown-6 35835-94-0, Ethyltriphenylphosphonium acetate  
 RL: CAT (Catalyst use); USES (Uses)  
 (polyester hydroxy ether terpolymers from lactide and bisphenol-A  
 derivs.)

IT **433709-67-2P**  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (polyester hydroxy ether terpolymers from lactide and bisphenol-A  
 derivs.)

RE.CNT 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD  
 RE

- (1) Abayasinghe, N; Polym Prepr 2001, V42(2), P485 HCAPLUS
- (2) Albertsson, A; Macromol Chem, Macromol Symp 1992, V53, P221 HCAPLUS
- (3) Cassidy, P; Modern Fluoropolymers 1992, P173
- (4) Chen, X; Macromolecules 1987, V30, P4295
- (5) Chen, X; Macromolecules 1997, V30, P3470 HCAPLUS
- (6) Coudane, J; J Polym Sci Polym Chem Ed 1997, V35, P1651 HCAPLUS
- (7) Kimura, Y; Polymer 1993, V34, P1741 HCAPLUS
- (8) Nelson, E; High Perform Polym 2001, V13, P101 HCAPLUS
- (9) Nishikubo, T; J Appl Polym Sci 1987, V33, P2821 HCAPLUS
- (10) Nishikubo, T; J Polym Sci Polym Chem Ed 1987, V25, P1339 HCAPLUS
- (11) Nishikubo, T; J Polym Sci Polym Chem Ed 1989, V27, P1975 HCAPLUS
- (12) Nishikubo, T; Macromol Chem 1987, V188, P799 HCAPLUS
- (13) Schmidt, P; Macromolecules 1996, V29, P3674 HCAPLUS
- (14) Yin, M; Macromolecules 1999, V32, P7711 HCAPLUS

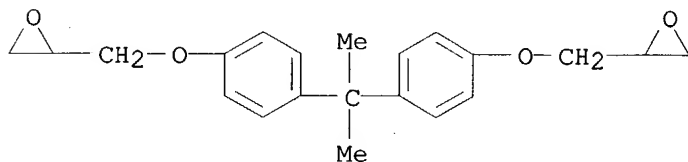
IT **433709-67-2P**  
 RL: SPN (Synthetic preparation); PREP (Preparation)  
 (polyester hydroxy ether terpolymers from lactide and bisphenol-A  
 derivs.)

RN 433709-67-2 HCAPLUS

CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, polymer with 2,2'-[(1-  
 methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane] and  
 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol] (9CI) (CA  
 INDEX NAME)

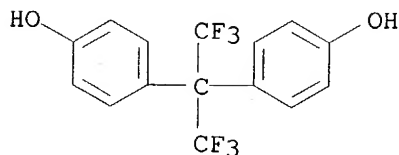
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CM 2

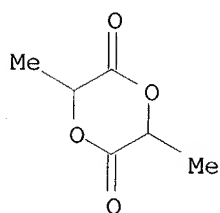
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 CMF C15 H10 F6 O2



CM 3

CRN 95-96-5

CMF C6 H8 O4



L26 ANSWER 3 OF 5 HCAPLUS COPYRIGHT 2004 ACS on STN  
 AN 1999:119906 HCAPLUS  
 DN 130:210129  
 ED Entered STN: 23 Feb 1999  
 TI Lactic acid-modified polyol and biodegradable polymer composition from the same  
 IN Higuchi, Shoichi; Satake, Shuichi; Maeda, Kohei; Takayama, Shigehisa  
 PA Sanyo Chemical Industries Ltd., Japan  
 SO Jpn. Kokai Tokkyo Koho, 6 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 IC ICM C08G063-08  
 ICS C08G018-32; C08G018-65; C08G059-62; C08G063-66; C08G065-06  
 CC 35-7 (Chemistry of Synthetic High Polymers)  
 Section cross-reference(s): 38

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11043538	A2	19990216	JP 1998-158579	19980522
PRAI JP 1997-156024		19970528		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 11043538	ICM	C08G063-08
	ICS	C08G018-32; C08G018-65; C08G059-62; C08G063-66; C08G065-06

AB The polyol is prepared by ring-opening polymerization of a compound having  $\geq 2$  active H, a lactide and an alkylene oxide having  $\geq 2$  C in the presence of  $\text{SnCl}_2$  or tin 2-ethylhexanoate (I). Thus, a composition was prepared

by reaction of 12.5 parts 4,4-diphenylmethane isocyanate and 100 parts a polyol (number-average mol. weight 8000), prepared by the reaction of ethylenediamine

5, DL-lactide 45 and propylene oxide 50% in the presence of I, for 12 h at 100°.

ST biodegrdn lactic acid polyester polyurethane; lactide ethylenedimaine polypropylene oxide polyester

IT Polymers, preparation  
 RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (biodegradable; lactic acid-modified polyol and biodegradable polymer composition from the same)

IT Polyesters, uses  
 Polyesters, uses  
 RL: CAT (Catalyst use); USES (Uses)  
 (epoxy; lactic acid-modified polyol and biodegradable polymer composition from the same)

IT Polyesters, preparation  
 RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (lactic acid-based; lactic acid-modified polyol and biodegradable polymer composition from the same)

IT Polyesters, preparation  
 RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (lactide; lactic acid-modified polyol and biodegradable polymer composition from the same)

IT Epoxy resins, uses  
 Epoxy resins, uses  
 Polyurethanes, uses  
 RL: CAT (Catalyst use); USES (Uses)  
 (polyester-; lactic acid-modified polyol and biodegradable polymer composition from the same)

IT Polymerization catalysts  
 (ring-opening; lactic acid-modified polyol and biodegradable polymer composition from the same)

IT 301-10-0 7772-99-8, Tin chloride, uses  
 RL: CAT (Catalyst use); USES (Uses)  
 (lactic acid-modified polyol and biodegradable polymer composition from the same)

IT **220891-29-2P**, MDI-ethylenediamine-DL-lactide-propylene oxide copolymer **220891-30-5P**, MDI-DL-lactic acid-propylene oxide block copolymer **220891-32-7P**, 2,2-Bis(4'-glycidoxyphenyl)propane-ethylenediamine-DL-lactide-propylene oxide copolymer  
 RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (lactic acid-modified polyol and biodegradable polymer composition from the same)

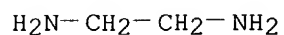
IT **220891-29-2P**, MDI-ethylenediamine-DL-lactide-propylene oxide copolymer **220891-32-7P**, 2,2-Bis(4'-glycidoxyphenyl)propane-ethylenediamine-DL-lactide-propylene oxide copolymer  
 RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (lactic acid-modified polyol and biodegradable polymer composition from the same)

RN 220891-29-2 HCAPLUS

CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, polymer with 1,2-ethanediamine, 1,1'-methylenebis[4-isocyanatobenzene] and methyloxirane (9CI) (CA INDEX NAME)

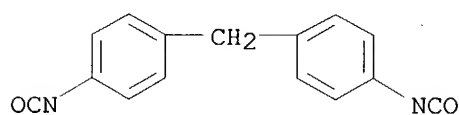
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CRN 107-15-3  
CMF C2 H8 N2



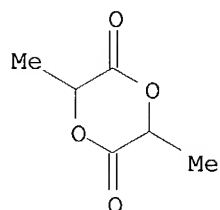
CM 2

CRN 101-68-8  
CMF C15 H10 N2 O2



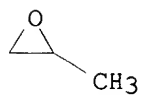
CM 3

CRN 95-96-5  
CMF C6 H8 O4



CM 4

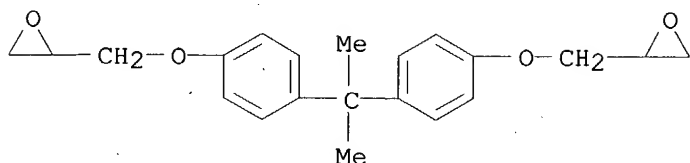
CRN 75-56-9  
CMF C3 H6 O



RN 220891-32-7 HCAPLUS  
CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, polymer with 1,2-ethanediamine,  
2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane] and  
methyloxirane (9CI) (CA INDEX NAME)

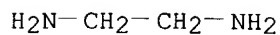
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CRN 1675-54-3  
CMF C21 H24 O4



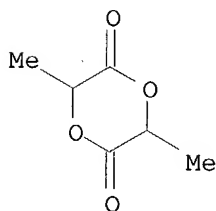
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CMF C2 H8 N2



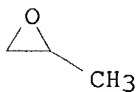
CM 3

CRN 95-96-5  
CMF C6 H8 O4



CM 4

CRN 75-56-9  
CMF C3 H6 O



L26 ANSWER 4 OF 5 HCAPLUS COPYRIGHT 2004 ACS on STN  
AN 1999:107037 HCAPLUS  
DN 130:210118  
ED Entered STN: 16 Feb 1999  
TI Manufacture of biodegradable, heat-resistant, and high-molecular-weight  
lactic acid-based polyethers  
IN Imamura, Shoji



PA Dainippon Ink and Chemicals, Inc., Japan  
 SO Jpn. Kokai Tokkyo Koho, 12 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 IC ICM C08G018-48  
 ICS C08G065-26; C08G065-32  
 CC 35-5 (Chemistry of Synthetic High Polymers)  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 11035655	A2	19990209	JP 1997-192395	19970717
PRAI	JP 1997-192395		19970717		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 11035655	ICM	C08G018-48
	ICS	C08G065-26; C08G065-32

AB Title polyethers are manufactured by reaction of (50-98):(2-50) lactide (I)-polyethylene glycol (II) copolymer (A) with (50-98):(2-50) I-polypropylene glycol (III) copolymer (B) at weight ratio of A/B (10-80)/(20-90) in the presence of 0.1-10% (based on A and B) chain extenders having functional groups reactive with OH. Alternatively, the polyethers may be manufactured by reaction of (50-98):(2-50) copolymers (C) of I and ethylene oxide-propylene oxide block copolymer with 0.1-10% (based on C) of the chain extenders. Thus, 95.0 g L-I was reacted with 2.5 g II and 2.5 g III and subsequently with 1.5 g 2,4-TDI to give a copolymer (Mw 74,000), whose test piece showed temperature at E' 3900 MPa (JIS K 7198 A) 55° and loss rate of Mw 68% after 3-mo burial in a compost.

ST lactide polyethylene glycol polyester polyether manuf; polypropylene glycol polyester polyoxyalkylene heat resistant; TDI ethylene oxide polyoxyalkylene polyurethane biodegradable; propylene oxide polyester polyoxyalkylene block manuf; lactic acid polyether high mol wt

IT Polymers, preparation  
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (biodegradable; manufacture of biodegradable, heat-resistant, and high-mol.-weight polyester-polyoxyalkylenes)

IT Isocyanates  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (di-, chain extender; manufacture of biodegradable, heat-resistant, and high-mol.-weight polyester-polyoxyalkylenes)

IT Carboxylic acids, reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (dicarboxylic, derivs., chain extender; manufacture of biodegradable, heat-resistant, and high-mol.-weight polyester-polyoxyalkylenes)

IT Epoxides  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (diepoxides, chain extender; manufacture of biodegradable, heat-resistant, and high-mol.-weight polyester-polyoxyalkylenes)

IT Polyoxyalkylenes, preparation  
 Polyoxyalkylenes, preparation  
 Polyoxyalkylenes, preparation  
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (epoxy-polyester-, block, lactide-based; manufacture of biodegradable, heat-resistant, and high-mol.-weight polyester-polyoxyalkylenes)

IT Polyesters, preparation  
 Polyesters, preparation

- Polyesters, preparation  
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (epoxy-polyoxyalkylene-, block, lactide-based; manufacture of biodegradable, heat-resistant, and high-mol.-weight polyester-polyoxyalkylenes)
- IT Heat-resistant materials  
 (manufacture of biodegradable, heat-resistant, and high-mol.-weight polyester-polyoxyalkylenes)
- IT Polyoxyalkylenes, preparation  
 Polyoxyalkylenes, preparation  
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (polyester-, block, lactide-based; manufacture of biodegradable, heat-resistant, and high-mol.-weight polyester-polyoxyalkylenes)
- IT Polyoxyalkylenes, preparation  
 Polyoxyalkylenes, preparation  
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (polyester-, lactide-based; manufacture of biodegradable, heat-resistant, and high-mol.-weight polyester-polyoxyalkylenes)
- IT Epoxy resins, preparation  
 Epoxy resins, preparation  
 Epoxy resins, preparation  
 Polyurethanes, preparation  
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (polyester-polyoxyalkylene-, block, lactide-based; manufacture of biodegradable, heat-resistant, and high-mol.-weight polyester-polyoxyalkylenes)
- IT Polyesters, preparation  
 Polyesters, preparation  
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (polyoxyalkylene-, block, lactide-based; manufacture of biodegradable, heat-resistant, and high-mol.-weight polyester-polyoxyalkylenes)
- IT Polyesters, preparation  
 Polyesters, preparation  
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (polyoxyalkylene-, lactide-based; manufacture of biodegradable, heat-resistant, and high-mol.-weight polyester-polyoxyalkylenes)
- IT 220926-44-3P, L-Lactide-polyethylene glycol-polypropylene glycol-2,4-TDI block copolymer 220926-45-4P, Dimethyl succinate-D-lactide-L-lactide-polyethylene glycol-polypropylene glycol block copolymer 220926-46-5P, D-Lactide-L-lactide-polyethylene glycol-polypropylene glycol-pyromellitic anhydride copolymer 220926-47-6P, Ethylene glycol diglycidyl ether-L-lactide-polyethylene glycol-polypropylene glycol block copolymer 220926-48-7P, Hexamethylene diisocyanate-D-lactide-L-lactide-polyethylene glycol-polypropylene glycol block copolymer 220926-49-8P, Isophorone diisocyanate-D-lactide-L-lactide-polyethylene glycol-polypropylene glycol block copolymer **220926-50-1P**, Bisphenol A diglycidyl ether-L-lactide-polyethylene glycol-polypropylene glycol block copolymer 220926-51-2P, D-Lactide-L-lactide-polyethylene glycol-polypropylene glycol-sebacic acid block copolymer 220926-52-3P, 1,6-Hexanediol diglycidyl ether-L-lactide-polyethylene glycol-polypropylene glycol block copolymer 220926-53-4P, L-Lactide-Newpol PE 61-pyromellitic anhydride copolymer 220926-54-5P, Isophorone diisocyanate-L-lactide-Newpol PE 75 block copolymer 220926-55-6P, D-Lactide-L-lactide-Newpol PE 128-polyethylene glycol diglycidyl ether copolymer, block

RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(manufacture of biodegradable, heat-resistant, and high-mol.-weight polyester-polyoxyalkylenes)

IT 220926-50-1P, Bisphenol A diglycidyl ether-L-lactide-polyethylene glycol-polypropylene glycol block copolymer

RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(manufacture of biodegradable, heat-resistant, and high-mol.-weight polyester-polyoxyalkylenes)

RN 220926-50-1 HCAPLUS

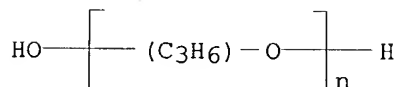
CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3S,6S)-, polymer with  $\alpha$ -hydro- $\omega$ -hydroxypoly(oxy-1,2-ethanediyl),  $\alpha$ -hydro- $\omega$ -hydroxypoly[oxy(methyl-1,2-ethanediyl)] and 2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bis[oxirane], block (9CI) (CA INDEX NAME)

CM 1

CRN 25322-69-4

CMF (C3 H6 O)<sub>n</sub> H2 O

CCI IDS, PMS

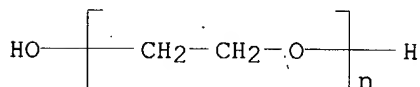


CM 2

CRN 25322-68-3

CMF (C2 H4 O)<sub>n</sub> H2 O

CCI PMS

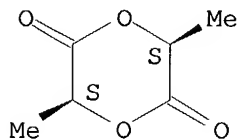


CM 3

CRN 4511-42-6

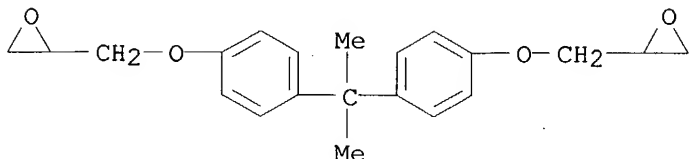
CMF C6 H8 O4

Absolute stereochemistry.



CM 4

CRN 1675-54-3  
CMF C21 H24 O4



L26 ANSWER 5 OF 5 HCAPLUS COPYRIGHT 2004 ACS on STN  
AN 1997:499537 HCAPLUS  
DN 127:95758  
ED Entered STN: 07 Aug 1997  
TI Preparation of biodegradable lactic acid-based polyether-polyesters with excellent strength and storage stability  
IN Takahashi, Akio; Imamura, Akiyuki  
PA Dainippon Ink and Chemicals, Inc., Japan  
SO Jpn. Kokai Tokkyo Koho, 8 pp.  
CODEN: JKXXAF  
DT Patent  
LA Japanese  
IC ICM C08G018-42  
ICS C08G063-66; C08G063-685  
CC 35-5 (Chemistry of Synthetic High Polymers)  
Section cross-reference(s): 38

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 09143239	A2	19970603	JP 1995-309014	19951128
PRAI	JP 1995-309014		19951128		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 09143239	ICM	C08G018-42
	ICS	C08G063-66; C08G063-685

AB Title polymers are prepared by copolymn. of lactides (A) with OH-terminated polyether-polyols (B) in a ratio of (50-99):(1-50) (%) A/B in the presence of ring-opening polymerization catalysts followed by further polymerization with 0.1-7 parts [vs. 100 parts of (A + B)] polyisocyanates of functionality  $\geq 3$ . Preferably, the residual lactides may be removed by solvent extraction or deaeration in the presence of 0.001-1 parts [vs. 100 parts of (A + B)] catalyst inactivators. Thus, 30.0 g polyethylene glycol-polypropylene glycol copolymer was copolymd. with 66.5 g L-lactide and 3.5 g D-lactide at 170° in the presence of Sn octanoate to give a polymer [weight-average mol. weight (Mw) 23,000], 10.35 g of which was treated with 103.8 mg Burnock DN 980S (polyisocyanate) at 170° and freed of unreacted lactides in the presence of AP 8 to give a polyoxyalkylene-polyester-polyurethane (I). Then, I was hot-pressed at 170° to give a sheet showing tensile breaking strength, 260 kg/cm<sup>2</sup> and Mw 285,000 initially and 250,000 after 1-wk storage at 35° and humidity 80%.

ST biodegradable polyoxyalkylene polyester polyurethane strength; storability biodegradable polyester lactide removed

IT Biodegradable materials  
(impact-resistant; preparation of biodegradable polyoxyalkylene-polyester-polyurethanes with excellent strength and storage stability)

IT Polyurethanes, preparation  
RL: BPR (Biological process); BSU (Biological study, unclassified); IMF (Industrial manufacture); PRP (Properties); BIOL (Biological study); PREP (Preparation); PROC (Process)  
(polyester-polyoxyalkylene-; preparation of biodegradable polyoxyalkylene-polyester-polyurethanes with excellent strength and storage stability)

IT 12645-31-7  
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)  
(AP 8, catalyst inactivators; preparation of biodegradable polyoxyalkylene-polyester-polyurethanes with excellent strength and storage stability)

IT **191031-93-3P** 191031-99-9P 191032-03-8P 191032-06-1P  
191032-09-4P 192226-57-6P 192226-59-8P  
RL: BPR (Biological process); BSU (Biological study, unclassified); IMF (Industrial manufacture); PRP (Properties); BIOL (Biological study); PREP (Preparation); PROC (Process)  
(preparation of biodegradable polyoxyalkylene-polyester-polyurethanes with excellent strength and storage stability)

IT **191031-93-3P**  
RL: BPR (Biological process); BSU (Biological study, unclassified); IMF (Industrial manufacture); PRP (Properties); BIOL (Biological study); PREP (Preparation); PROC (Process)  
(preparation of biodegradable polyoxyalkylene-polyester-polyurethanes with excellent strength and storage stability)

RN 191031-93-3 HCAPLUS

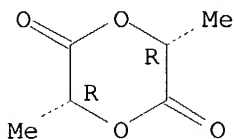
CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3R-cis)-, polymer with (3S-cis)-3,6-dimethyl-1,4-dioxane-2,5-dione, 1,1',1''-methylidynetris[4-isocyanatobenzene], methyloxirane and oxirane (9CI) (CA INDEX NAME)

CM 1

CRN 13076-17-0

CMF C6 H8 O4

Absolute stereochemistry.

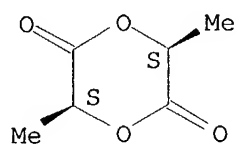


CM 2

CRN 4511-42-6

CMF C6 H8 O4

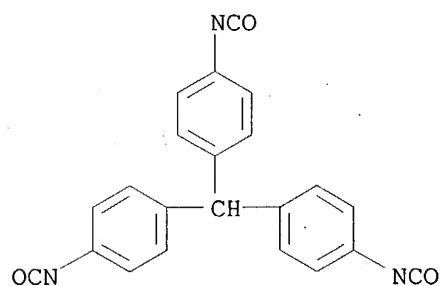
Absolute stereochemistry.



CM 3

CRN 2422-91-5

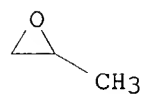
CMF C22 H13 N3 O3



CM 4

CRN 75-56-9

CMF C3 H6 O



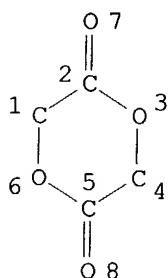
CM 5

CRN 75-21-8

CMF C2 H4 O



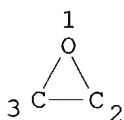
=> => => D QUE L42  
L15 STR



NODE ATTRIBUTES:  
 DEFAULT MLEVEL IS ATOM  
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:  
 RING(S) ARE ISOLATED OR EMBEDDED  
 NUMBER OF NODES IS 8

STEREO ATTRIBUTES: NONE  
 L16 STR



NODE ATTRIBUTES:  
 DEFAULT MLEVEL IS ATOM  
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:  
 RSPEC I  
 NUMBER OF NODES IS 3

STEREO ATTRIBUTES: NONE  
 L17 STR

Cb^Ak^Cb  
 1 2 3

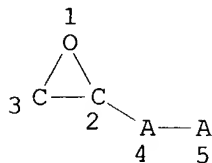
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 DEFAULT MLEVEL IS ATOM  
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:  
 RING(S) ARE ISOLATED OR EMBEDDED  
 NUMBER OF NODES IS 3

STEREO ATTRIBUTES: NONE  
 L19 SCR 2043  
 L22 217 SEA FILE=REGISTRY SSS FUL L15 AND L16 AND L19  
 L24 7 SEA FILE=REGISTRY SUB=L22 SSS FUL L17  
 L25 210 SEA FILE=REGISTRY ABB=ON L22 NOT L24  
 L27 287 SEA FILE=HCAPLUS ABB=ON L25  
 L29 196 SEA FILE=HCAPLUS ABB=ON L27(L) (PREP OR IMF OR SPN OR POF)/RL  
 L30 4 SEA FILE=HCAPLUS ABB=ON L29 AND ?TERPOLYMER?

*Other  
 polymers  
 which do  
 not have  
 CB-AK-CB  
 linker*

L32 STR



NODE ATTRIBUTES:  
 DEFAULT MLEVEL IS ATOM  
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:  
 RSPEC I  
 NUMBER OF NODES IS 5

STEREO ATTRIBUTES: NONE

L34 35 SEA FILE=REGISTRY SUB=L22 SSS FUL L32  
 L35 30 SEA FILE=REGISTRY ABB=ON L34 NOT L24  
 L36 18 SEA FILE=REGISTRY ABB=ON L35 AND 3-6/NC  
 L37 16 SEA FILE=HCAPLUS ABB=ON L36  
 L38 13 SEA FILE=HCAPLUS ABB=ON L37(L) (POF OR IMF OR SPN OR PREP)/RL  
 L39 0 SEA FILE=HCAPLUS ABB=ON L37 AND ?TERPOLYMER?  
 L40 17 SEA FILE=HCAPLUS ABB=ON L30 OR L38 OR L39  
 L41 3 SEA FILE=HCAPLUS ABB=ON L37 NOT L38  
 L42 20 SEA FILE=HCAPLUS ABB=ON L40 OR L41

=&gt; D L42 1-20 ALL HITSTR

L42 ANSWER 1 OF 20 HCAPLUS COPYRIGHT 2004 ACS on STN  
 AN 2004:331809 HCAPLUS  
 DN 140:339838  
 ED Entered STN: 23 Apr 2004  
 TI Crosslinked biodegradable polyester hydrogels, their synthesis, and use  
 IN Asgarzadeh, Firouz; Costantino, Henry R.  
 PA USA  
 SO U.S. Pat. Appl. Publ., 20 pp.  
 CODEN: USXXCO  
 DT Patent  
 LA English  
 IC ICM C08G065-14  
 NCL 525404000  
 CC 35-8 (Chemistry of Synthetic High Polymers)  
 Section cross-reference(s): 37, 63

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2004077797	A1	20040422	US 2002-273365	20021018
	WO 2004036995	A1	20040506	WO 2003-US29984	20030925
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG,				

KATHLEEN FULLER EIC 1700 REMSEN 4B28 571/272-2505



CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC,  
 NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ,  
 GW, ML, MR, NE, SN, TD, TG

PRAI US 2002-273365 A 20021018

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
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US 2004077797	ICM	C08G065-14
	NCL	525404000

- AB The crosslinked block polymers, synthesized through ring-opening polymerization of ethylenically unsatd. epoxides, in combination with  $\alpha$ -hydroxy acids using a hydrophilic macroinitiator such as poly(ethylene glycol), form substituted copolymers having ethylenically unsatd. functionality randomly distributed along the polyester polymer backbone. That copolymer is subsequently radiation crosslinked to form a hydrogel network. Specifically, biodegradable poly( $\alpha$ -hydroxy acid-co-glycidyl methacrylate)-block-poly(ethylene glycol)-block-poly( $\alpha$ -hydroxy acid-co-glycidyl methacrylate) copolymers, are subsequently crosslinked to form hydrogel networks. These hydrogel networks are used in various applications, in particular, for the controlled release of drugs and proteins. D,L-Lactide (2 g), glycidyl methacrylate (2 mL) and poly(ethylene glycol) (8.1 g, Mn 4600) were combined in a necked tube, melted at 150°, 0.2 mL 1% solution of 1,4-benzoquinone in di-Bu phthalate radical inhibitor and 0.5 mL 50 mg/mL solution of stannous octoate in di-Bu phthalate were added, and held at 175° for 1 h to give a copolymer having Mn 9400 g/mol, polydispersity index 1.09, and inherent viscosity 0.18 dL/g.
- ST polyethylene glycol polylactide glycidyl methacrylate block copolymer hydrogel
- IT Polymerization kinetics  
 (block; radiation crosslinkable biodegradable polyester hydrogels for delivery systems)
- IT Drug delivery systems  
 (hydrogels; radiation crosslinkable biodegradable polyester hydrogels for delivery systems)
- IT Polyoxyalkylenes, preparation  
 RL: IMF (Industrial manufacture); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)  
 (polyester-, block, diblock; radiation crosslinkable biodegradable polyester hydrogels for delivery systems)
- IT Polyesters, preparation  
 RL: IMF (Industrial manufacture); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)  
 (polyoxyalkylene-, block, diblock; radiation crosslinkable biodegradable polyester hydrogels for delivery systems)
- IT Proteins  
 RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (radiation crosslinkable biodegradable polyester hydrogels for delivery systems)
- IT Interferons  
 RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 ( $\alpha$ ; radiation crosslinkable biodegradable polyester hydrogels for delivery systems)
- IT 301-10-0, Tin dioctoate  
 RL: CAT (Catalyst use); USES (Uses)  
 (radiation crosslinkable biodegradable polyester hydrogels for delivery systems)
- IT **680190-33-4P**, Glycidyl methacrylate-DL-lactide-polyethylene glycol block copolymer

RL: **IMF (Industrial manufacture)**; THU (Therapeutic use); BIOL (Biological study); **PREP (Preparation)**; USES (Uses)  
(radiation crosslinkable biodegradable polyester hydrogels for delivery systems)

IT **680190-33-4P**, Glycidyl methacrylate-DL-lactide-polyethylene glycol block copolymer

RL: **IMF (Industrial manufacture)**; THU (Therapeutic use); BIOL (Biological study); **PREP (Preparation)**; USES (Uses)  
(radiation crosslinkable biodegradable polyester hydrogels for delivery systems)

RN 680190-33-4 HCAPLUS

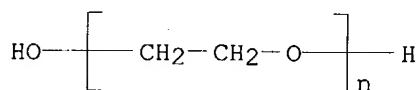
CN 2-Propenoic acid, 2-methyl-, oxiranylmethyl ester, polymer with 3,6-dimethyl-1,4-dioxane-2,5-dione and  $\alpha$ -hydro- $\omega$ -hydroxypoly(oxy-1,2-ethanediyl), block (9CI) (CA INDEX NAME)

CM 1

CRN 25322-68-3

CMF (C2 H4 O)<sub>n</sub> H2 O

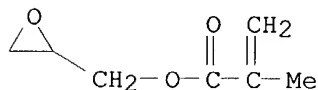
CCI PMS



CM 2

CRN 106-91-2

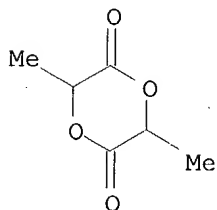
CMF C7 H10 O3



CM 3

CRN 95-96-5

CMF C6 H8 O4



L42 ANSWER 2 OF 20 HCAPLUS COPYRIGHT 2004 ACS on STN  
AN 2003:915394 HCAPLUS

KATHLEEN FULLER EIC 1700 REMSEN 4B28 571/272-2505

DN 140:94447  
ED Entered STN: 24 Nov 2003  
TI Biodegradable/biocompatible ABC triblock copolymer bearing hydroxyl groups in the middle block  
AU Gadzinowski, Mariusz; Sosnowski, Stanislaw  
CS Center of Molecular and Macromolecular Studies, Polish Academy of Sciences, Lodz, 90-363, Pol.  
SO Journal of Polymer Science, Part A: Polymer Chemistry (2003), 41(23), 3750-3760  
CODEN: JPACEC; ISSN: 0887-624X  
PB John Wiley & Sons, Inc.  
DT Journal  
LA English  
CC 35-8 (Chemistry of Synthetic High Polymers)  
AB New biodegradable/biocompatible ABC block copolymers, poly(ethylene oxide)-b-poly(glycidol)-b-poly(L,L-lactide) (PEO-PGly-PLLA), were synthesized. First, PEO-b-poly(1-ethoxyethylglycidol)-b-PLLA was synthesized by a successive anionic ring-opening copolymerization of ethylene oxide, 1-ethoxyethylglycidyl ether, and L,L-lactide initiated with potassium 2-methoxyethanolate. In the second step, the 1-ethoxyethyl blocking groups of 1-ethoxyethylglycidyl ether were removed at weakly acidic conditions leaving other blocks intact. The resulting copolymers were composed of hydrophilic and hydrophobic segments joined by short polyglycidol blocks with one hydroxyl group in each monomeric unit. These hydroxyl groups may be used for further copolymer transformations. The PEO-PGly-PLLA copolymers with a mol. weight of PLLA blocks below 5000 were water-soluble. Above the critical micellar concentration (ranging from 0.05 to 1.0 g/L, depending on the composition of copolymer), copolymers formed macromolecular micelles with a hydrophobic PLLA core and hydrophilic PEO shell. The diameters of the micelles were about 25 nm.  
ST polyoxyethylene polyglycidol polylactide block biodegradable biocompatible  
IT Biodegradable materials  
(biodegradable/biocompatible ABC triblock copolymer bearing hydroxyl groups in middle block)  
IT Polyoxyalkylenes, preparation  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(polyester-, block; biodegradable/biocompatible ABC triblock copolymer bearing hydroxyl groups in middle block)  
IT Polyesters, preparation  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(polyoxyalkylene-, block; biodegradable/biocompatible ABC triblock copolymer bearing hydroxyl groups in middle block)  
IT 644990-92-1P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(biodegradable/biocompatible ABC triblock copolymer bearing hydroxyl groups in middle block)  
IT 644990-92-1DP, hydrolyzed  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(biodegradable/biocompatible ABC triblock copolymer bearing hydroxyl groups in middle block)  
RE.CNT 35 THERE ARE 35 CITED REFERENCES AVAILABLE FOR THIS RECORD  
RE  
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(2) Anon; Polymeric Site-Specific Pharmacotherapy 1994, P1  
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(4) Baran, J; Macromol Chem Rapid Commun 1997, V18, P325 HCAPLUS  
(5) Basinska, T; e-Polymers, <http://e-polymers.org> 2002, P011

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- (19) Jeong, B; Nature 1997, V388, P860 HCAPLUS
- (20) Kim, H; Macromol Rapid Commun 2002, V23, P26 HCAPLUS
- (21) Kim, S; J Controlled Release 1998, V56, P197 HCAPLUS
- (22) Kiser, P; Nature 1998, V394, P459 HCAPLUS
- (23) Kriz, J; Macromolecules 1998, V31, P41 HCAPLUS
- (24) Liu, F; Macromolecules 2001, V34, P1302 HCAPLUS
- (25) Liu, J; Biomacromolecules 2001, V2, P362 HCAPLUS
- (26) Liu, S; Macromolecules 2002, V35, P6121 HCAPLUS
- (27) Orihara, Y; Langmuir 2001, V17, P6072 HCAPLUS
- (28) Slomkowski, S; Macromolecules 1989, V22, P503 HCAPLUS
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- (31) Taton, D; Macromol Chem Phys 1994, V195, P139 HCAPLUS
- (32) Thurmond, K; J Am Chem Soc 1997, V119, P6656 HCAPLUS
- (33) Tsuji, H; Biopolymers 2001, V4, P129
- (34) Yasugi, K; Macromolecules 1999, V32, P8024 HCAPLUS
- (35) Zhang, Q; J Am Chem Soc 2000, V122, P3642 HCAPLUS

IT 644990-92-1P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP

(Preparation); RACT (Reactant or reagent)

(biodegradable/biocompatible ABC triblock copolymer bearing hydroxyl groups in middle block)

RN 644990-92-1 HCAPLUS

CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3S,6S)-, polymer with [(1-ethoxyethoxy)methyl]oxirane and oxirane, monomethyl ether, block (9CI)  
(CA INDEX NAME)

CM 1

CRN 67-56-1

CMF C H4 O

H<sub>3</sub>C-OH

CM 2

CRN 644990-91-0

CMF (C7 H14 O3 . C6 H8 O4 . C2 H4 O)x

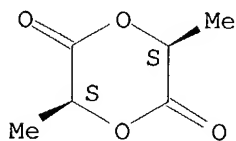
CCI PMS

CM 3

CRN 4511-42-6

CMF C6 H8 O4

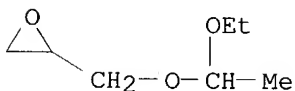
Absolute stereochemistry.



CM 4

CRN 4416-85-7

CMF C7 H14 O3



CM 5

CRN 75-21-8

CMF C2 H4 O



IT 644990-92-1DP, hydrolyzed

RL: **SPN (Synthetic preparation); PREP (Preparation)**

(biodegradable/biocompatible ABC triblock copolymer bearing hydroxyl groups in middle block)

RN 644990-92-1 HCAPLUS

CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3S,6S)-, polymer with [(1-ethoxyethoxy)methyl]oxirane and oxirane, monomethyl ether, block (9CI)  
(CA INDEX NAME)

CM 1

CRN 67-56-1

CMF C H4 O

H<sub>3</sub>C-OH

CM 2

CRN 644990-91-0

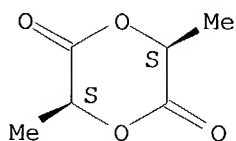
CMF (C7 H14 O3 . C6 H8 O4 . C2 H4 O) x

CCI PMS

CM 3

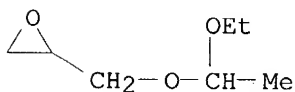
CRN 4511-42-6  
CMF C6 H8 O4

Absolute stereochemistry.



CM 4

CRN 4416-85-7  
CMF C7 H14 O3



CM 5

CRN 75-21-8  
CMF C2 H4 O



L42 ANSWER 3 OF 20 HCAPLUS COPYRIGHT 2004 ACS on STN  
AN 2003:671145 HCAPLUS  
DN 139:198242  
ED Entered STN: 28 Aug 2003  
TI Manufacture of lactic acid block copolymers with high molecular weight  
IN Kumasawa, Sadanori; Ome, Hirokazu; Kumaki, Jiro  
PA Toray Industries, Inc., Japan  
SO Jpn. Kokai Tokkyo Koho, 11 pp.  
CODEN: JKXXAF  
DT Patent  
LA Japanese  
IC ICM C08G063-80  
CC 37-3 (Plastics Manufacture and Processing)  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2003238672	A2	20030827	JP 2002-37876	20020215
PRAI	JP 2002-37876		20020215		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
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JP 2003238672 ICM C08G063-80

AB The block copolymers, forming stereocomplexes, are manufactured by (a) preparation

of L-lactic acid polymers and D-lactic acid polymers, (b) mixing the L-lactic acid polymers and D-lactic acid polymers, and (c) solid polymerization of the mixts. at temps. lower than m.p. of the mixts. Thus, a block copolymer (Mw 135 + 103), which was manufactured by preparation of L-lactide homopolymer (I), preparation of D-lactide homopolymer (II), mixing I 25, II 25, and tin octylate 0.05 part, and solid-polymerization at 180° for 30 h, was hot-pressed to give a 0.1-mm film with m.p. 221°.

ST lactic acid block polymer polyester stereocomplex; lactide polymer solid polymn block

IT Polyesters, preparation

RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation) (block, stereocomplex; manufacture of lactic acid block copolymers with high mol. weight)

IT 135796-12-2P, D-Lactide-L-lactide block copolymer 499781-66-7P  
583860-06-4P, D-Lactide-L-lactide-succinic anhydride-terephthalic acid diglycidyl ester block copolymer

RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)

(stereocomplex; manufacture of lactic acid block copolymers with high mol. weight)

IT 583860-06-4P, D-Lactide-L-lactide-succinic anhydride-terephthalic acid diglycidyl ester block copolymer

RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)

(stereocomplex; manufacture of lactic acid block copolymers with high mol. weight)

RN 583860-06-4 HCAPLUS

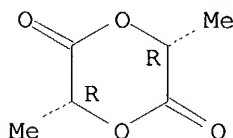
CN 1,4-Benzenedicarboxylic acid, bis(oxiranylmethyl) ester, polymer with dihydro-2,5-furandione, (3R,6R)-3,6-dimethyl-1,4-dioxane-2,5-dione and (3S,6S)-3,6-dimethyl-1,4-dioxane-2,5-dione, block (9CI) (CA INDEX NAME)

CM 1

CRN 13076-17-0

CMF C6 H8 O4

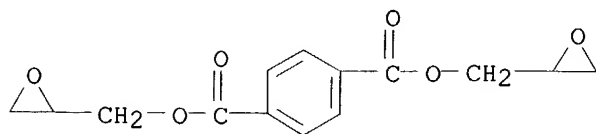
Absolute stereochemistry.



CM 2

CRN 7195-44-0

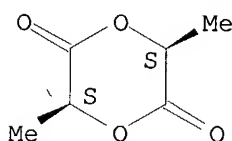
CMF C14 H14 O6



CM 3

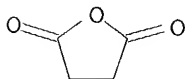
CRN 4511-42-6  
CMF C6 H8 O4

Absolute stereochemistry.



CM 4

CRN 108-30-5  
CMF C4 H4 O3



L42 ANSWER 4 OF 20 HCAPLUS COPYRIGHT 2004 ACS on. STN  
AN 2003:652542 HCAPLUS  
DN 139:324067  
ED Entered STN: 22 Aug 2003  
TI Phase Transition of the PLGA-g-PEG Copolymer Aqueous Solutions  
AU Jeong, Byeongmoon; Windisch, Charles F., Jr.; Park, Moon Jeong; Sohn, Youn  
Soo; Gutowska, Anna; Char, Kookheon  
CS Department of Chemistry, Division of Nano Science, Ewha Womans University,  
Seoul, 120-750, S. Korea  
SO Journal of Physical Chemistry B (2003), 107(37), 10032-10039  
CODEN: JPCBFK; ISSN: 1520-6106  
PB American Chemical Society  
DT Journal  
LA English  
CC 36-7 (Physical Properties of Synthetic High Polymers)  
AB The aqueous solution of poly(lactic acid-co-glycolic acid)-g-poly(ethylene glycol) becomes a gel as the temperature increases. The sol-to-gel transition temperature can be controlled from 15 to 45 °C by varying the number of poly(ethylene glycol) grafts and the composition of the polymer. In addition, hysteresis between heating and cooling cycles could be controlled by adding poly(ethylene glycol) with different mol. wts. as an additive. To prove the hypothesis of micellar aggregation for the sol-to-gel transition and the change in hydration status for the gel-to-sol transition, several



expts. were performed. Small-angle neutron scattering and Raman spectroscopy sensitively detected the sol-to-gel transition, because it involves aggregation of the scattering particle of micelles. IR and <sup>13</sup>C NMR showed that little change in hydration status is involved during the sol-to-gel transition, whereas significant change in hydration status is involved in the gel-to-sol transition. The intrinsic viscosity of the PEG showed that more significant dehydration can occur when PEG is attached to the hydrophobic group. On the basis of the expts. above, PEG dehydration is the major driving force for the phase change of the PLGA-g-PEG aqueous solution. At the sol-to-gel transition temperature, partial dehydration of the

PEG

induces the micellar aggregation while keeping the core-shell structure. However, at the gel-to-sol transition, dehydration of the PEG is so significant that the core-shell structure is broken and macroscopic phase separation occurs. These phenomena were associated with changes in the

carbonyl

stretching and ether bending modes in the IR spectra.

ST sol gel transition polylactide polyglycolide PEG graft; polylactide polyglycolide PEG graft gel prep

IT Viscosity

(complex; sol-gel transition of PLGA-g-PEG aqueous solns.)

IT Polyoxyalkylenes, properties

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(polyester-, graft; sol-gel transition of PLGA-g-PEG aqueous solns.)

IT Polyesters, properties

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(polyoxyalkylene-, graft; sol-gel transition of PLGA-g-PEG aqueous solns.)

IT Aggregation

Hydrodynamic radius

Hydrogels

Phase diagram

Sol-gel transition

Storage modulus

(sol-gel transition of PLGA-g-PEG aqueous solns.)

IT **432549-62-7P** 433212-35-2P, Glycolide-lactide-oxirane graft copolymer methyl ether

RL: PRP (Properties); **SPN (Synthetic preparation); PREP (Preparation)**

(sol-gel transition of PLGA-g-PEG aqueous solns.)

RE.CNT 39 THERE ARE 39 CITED REFERENCES AVAILABLE FOR THIS RECORD  
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IT 432549-62-7P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(sol-gel transition of PLGA-g-PEG aqueous solns.)

RN 432549-62-7 HCAPLUS

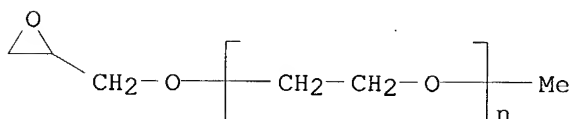
CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, polymer with 1,4-dioxane-2,5-dione and  $\alpha$ -methyl- $\omega$ -(oxiranylmethoxy)poly(oxy-1,2-ethanediyl), graft (9CI) (CA INDEX NAME)

CM 1

CRN 40349-67-5

CMF (C2 H4 O)<sub>n</sub> C4 H8 O2

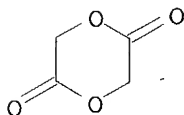
CCI PMS



CM 2

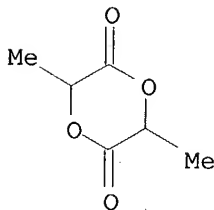
CRN 502-97-6

CMF C4 H4 O4



CM 3

CRN 95-96-5  
CMF C6 H8 O4



- L42 ANSWER 5 OF 20 HCAPLUS COPYRIGHT 2004 ACS on STN  
AN 2003:571491 HCAPLUS  
DN 139:351222  
ED Entered STN: 27 Jul 2003  
TI Controlled synthesis of amphiphilic poly(methacrylate)-g-[poly(ester)/poly(ether)] graft **terpolymers**  
AU Ydens, Isabelle; Degee, Philippe; Libiszowski, Jan; Duda, Andrzej; Penczek, Stanislaw; Dubois, Philippe  
CS Laboratory of Polymeric and Composite Materials (LPCM), University of Mons-Hainaut, Mons, B-7000, Belg.  
SO ACS Symposium Series (2003), 854(Advances in Controlled/Living Radical Polymerization), 283-298  
CODEN: ACSMC8; ISSN: 0097-6156  
PB American Chemical Society  
DT Journal  
LA English  
CC 37-3 (Plastics Manufacture and Processing)  
Section cross-reference(s): 46  
AB Coupling atom transfer radical polymerization (ATRP) and coordination-insertion ring-opening polymerization (ROP) allows access to well-defined poly(methacrylate)-g-[poly(ester)/poly(ether)] graft **terpolymers** according to a two-step procedure. In the first step, the controlled copolymn. of Me methacrylate (MMA), 2-hydroxyethyl methacrylate (HEMA) and poly(ethylene glycol) Me ether methacrylate (PEGMA) was carried out using Et 2-bromoisobutyrate and NiBr<sub>2</sub>(PPh<sub>3</sub>)<sub>2</sub> as initiator and catalyst, resp. The second step consisted of the ring-opening polymerization (ROP) of ε-caprolactone (CL) or L,L-dilactide (LA) initiated by poly(MMA-co-HEMA-co-PEGMA) in the presence of either tin (II) bis(2-ethylhexanoate) (Sn(Oct)<sub>2</sub>) or triethylaluminum (AlEt<sub>3</sub>). The resulting graft copolymers and the intermediate poly(MMA-co-HEMA-co-PEGMA) **terpolymers** proved to be efficient surfactants as evidenced by dynamic interfacial tension measurements.  
ST ethylene glycol methacrylate caprolactone graft **terpolymer** synthesis amphiphilic surfactant; atom transfer radical ring opening polymn controlled synthesis  
IT Polyoxyalkylenes, preparation  
RL: SPN (Synthetic preparation); PREP (Preparation) (acrylic-polyester-, graft; synthesis of amphiphilic poly(methacrylate)-g-[poly(ester)/poly(ether)] graft **terpolymers** by controlled two-step procedure)  
IT Polyesters, preparation  
RL: SPN (Synthetic preparation); PREP (Preparation) (acrylic-polyoxyalkylene-, graft; synthesis of amphiphilic

- poly(methacrylate)-g-[poly(ester)/poly(ether)] graft **terpolymers** by controlled two-step procedure)
- IT Surfactants  
(amphiphilic; synthesis of amphiphilic poly(methacrylate)-g-[poly(ester)/poly(ether)] graft **terpolymers** useful for surfactants)
- IT Polymerization  
(atom transfer, radical; for synthesis of amphiphilic poly(methacrylate)-g-[poly(ester)/poly(ether)] graft **terpolymers** by controlled two-step procedure)
- IT Interfacial tension  
(of amphiphilic poly(methacrylate)-g-[poly(ester)/poly(ether)] graft **terpolymers** prepared by controlled two-step procedure)
- IT Polymerization  
(ring-opening; for synthesis of amphiphilic poly(methacrylate)-g-[poly(ester)/poly(ether)] graft **terpolymers** by controlled two-step procedure)
- IT 97-93-8, Triethylaluminum, uses 301-10-0, Tin(II) 2-ethylhexanoate 600-00-0, Ethyl 2-bromoisobutyrate 14126-37-5, Bis(triphenylphosphino)nickel dibromide  
RL: CAT (Catalyst use); USES (Uses)  
(in synthesis of amphiphilic poly(methacrylate)-g-[poly(ester)/poly(ether)] graft **terpolymers** by controlled two-step procedure)
- IT 474075-90-6P, 2-Hydroxyethyl methacrylate-L,L-dilactide-methyl methacrylate-polyethylene glycol methyl ether methacrylate graft copolymer 474075-91-7P, ε-Caprolactone-2-hydroxyethyl methacrylate-methyl methacrylate-polyethylene glycol methyl ether methacrylate graft copolymer 618056-44-3P, ε-Caprolactone-ethylene oxide-2-hydroxyethyl methacrylate-methyl methacrylate graft copolymer methyl ether 618056-46-5P, Ethylene oxide-2-hydroxyethyl methacrylate-L,L-dilactide-methyl methacrylate graft copolymer methyl ether  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(synthesis of amphiphilic poly(methacrylate)-g-[poly(ester)/poly(ether)] graft **terpolymers** by controlled two-step procedure)
- IT 415710-87-1P 415719-03-8P, Ethylene oxide-2-hydroxyethyl methacrylate-methyl methacrylate graft copolymer methyl ether  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(the 1st step product; in synthesis of amphiphilic poly(methacrylate)-g-[poly(ester)/poly(ether)] graft **terpolymers** by controlled two-step procedure)

RE.CNT 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD  
RE

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IT **618056-46-5P**, Ethylene oxide-2-hydroxyethyl methacrylate-L,L-dilactide-methyl methacrylate graft copolymer methyl ether  
 RL: **SPN (Synthetic preparation); PREP (Preparation)**  
 (synthesis of amphiphilic poly(methacrylate)-g-[poly(ester)/poly(ether)] graft **terpolymers** by controlled two-step procedure)

RN 618056-46-5 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, polymer with (3S,6S)-3,6-dimethyl-1,4-dioxane-2,5-dione, methyl 2-methyl-2-propenoate and oxirane, methyl ether, graft (9CI) . (CA INDEX NAME)

CM 1

CRN 67-56-1

CMF C H4 O

H<sub>3</sub>C-OH

CM 2

CRN 618056-45-4

CMF (C6 H10 O3 . C6 H8 O4 . C5 H8 O2 . C2 H4 O)x

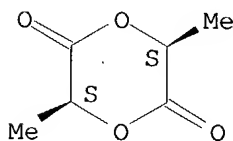
CCI PMS

CM 3

CRN 4511-42-6

CMF C6 H8 O4

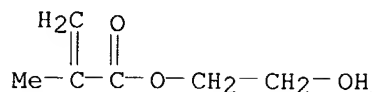
Absolute stereochemistry.



CM 4

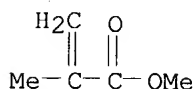
CRN 868-77-9

CMF C6 H10 O3



CM 5

CRN 80-62-6  
CMF C5 H8 O2



CM 6

CRN 75-21-8  
CMF C2 H4 O



L42 ANSWER 6 OF 20 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 2003:98128 HCAPLUS

DN 138:292608

ED Entered STN: 09 Feb 2003

TI Nanoparticulate DNA Packaging Using **Terpolymers** of Poly(lysine-g-(lactide-b-ethylene glycol))

AU Park, Susan; Healy, Kevin E.

CS Departments of Bioengineering and Materials Science and Engineering, University of California at Berkeley, Berkeley, CA, 94270-1762, USA

SO Bioconjugate Chemistry (2003), 14(2), 311-319

CODEN: BCCHE5; ISSN: 1043-1802

PB American Chemical Society

DT Journal

LA English

CC 63-6 (Pharmaceuticals)

Section cross-reference(s): 3, 35

AB **Terpolymers** of poly(lysine-g-(lactide-b-ethylene glycol))

(pK-pLL-pEG) were synthesized by using ring-opening polymerization and functional

end-group grafting. Synthesis was characterized with gel permeation chromatog., proton NMR spectroscopy, and a trinitrobenzene sulfonic acid binding assay. Polymer association behavior with DNA was investigated using an ethidium bromide exclusion assay, static light scattering, and SEM. Polylactide mol. weight was varied to investigate its impact on DNA association and resulting complex characteristics. Polylysine (Mw = 8800, DP = 42) modified with either 7400 or 10 870 Mw pLL-pEG reduced the min. amount of primary amines necessary for complete condensation by 23% and 48%, resp., compared to unmodified polylysine (pK42). Complexes formed with the

highest mol. weight **terpolymer** demonstrated significantly ( $p < 0.1$ ) greater resistance to DNase I than lyophilized pK42-DNA particles. This study suggests that modification of pK42 with pLL-pEG diblock copolymers impacts polylysine's associative and binding behavior to DNA and resulting particle characteristics. Modulation of **terpolymer** composition in complexes can enable control over intracellular plasmid dissociation rates to improve transfection efficiency.

ST polylysine polylactide PEG block graft nanoparticle DNA delivery; gene therapy polycation **terpolymer** nanoparticle

IT Polyelectrolytes

(cationic; preparation and characterization of **terpolymers** of polylysine graft copolymers with lactide-ethylene glycol block copolymers nanoparticulate DNA packaging)

IT Drug delivery systems

(nanoparticles; preparation and characterization of **terpolymers** of polylysine graft copolymers with lactide-ethylene glycol block copolymers nanoparticulate DNA packaging)

IT DNA

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(preparation and characterization of **terpolymers** of polylysine graft copolymers with lactide-ethylene glycol block copolymers nanoparticulate DNA packaging)

IT Gene therapy

(preparation and characterization of **terpolymers** of polylysine graft copolymers with lactide-ethylene glycol block copolymers nanoparticulate DNA packaging for gene therapy)

IT 9003-98-9, DNase I

RL: CAT (Catalyst use); USES (Uses)  
(DNA degradation by; preparation and characterization of **terpolymers** of polylysine graft copolymers with lactide-ethylene glycol block copolymers nanoparticulate DNA packaging)

IT 149479-29-8DP, FMOC-terminated

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(diblock; preparation and characterization of **terpolymers** of polylysine graft copolymers with lactide-ethylene glycol block copolymers nanoparticulate DNA packaging)

IT 505079-46-9P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(preparation and characterization of **terpolymers** of polylysine graft copolymers with lactide-ethylene glycol block copolymers nanoparticulate DNA packaging)

IT 505079-45-8DP, FMOC-terminated

RL: PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)  
(**terpolymer**; preparation and characterization of **terpolymers** of polylysine graft copolymers with lactide-ethylene glycol block copolymers nanoparticulate DNA packaging)

RE.CNT 55 THERE ARE 55 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

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IT 149479-29-8DP, FMOC-terminated

RL: RCT (Reactant); SPN (Synthetic preparation); PREP

(Preparation); RACT (Reactant or reagent)

(diblock; preparation and characterization of terpolymers of  
polylysine graft copolymers with lactide-ethylene glycol block  
copolymers nanoparticulate DNA packaging)

RN 149479-29-8 HCAPLUS

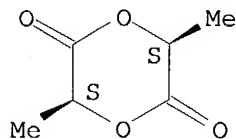
CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3S,6S)-, polymer with oxirane,  
block (9CI) (CA INDEX NAME)

CM 1



CRN 4511-42-6  
CMF C6 H8 O4

Absolute stereochemistry.



CM 2

CRN 75-21-8  
CMF C2 H4 O

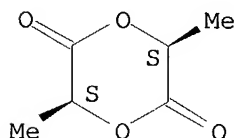


IT 505079-45-8DP, FMOC-terminated.  
RL: PRP (Properties); **SPN (Synthetic preparation)**; THU  
(Therapeutic use); BIOL (Biological study); **PREP (Preparation)**;  
USES (Uses)  
(**terpolymer**; preparation and characterization of  
**terpolymers** of polylysine graft copolymers with  
lactide-ethylene glycol block copolymers nanoparticulate DNA packaging)  
RN 505079-45-8 HCAPLUS  
CN L-Lysine, polymer with (3S,6S)-3,6-dimethyl-1,4-dioxane-2,5-dione and  
oxirane, block, graft (9CI) (CA INDEX NAME)

CM 1

CRN 4511-42-6  
CMF C6 H8 O4

Absolute stereochemistry.



CM 2

CRN 75-21-8  
CMF C2 H4 O

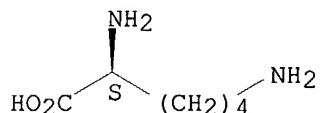


CM 3

CRN 56-87-1

CMF C6 H14 N2 O2

Absolute stereochemistry.



L42 ANSWER 7 OF 20 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 2003:6026 HCAPLUS

DN 138:73709

ED Entered STN: 05 Jan 2003

TI Functionalized degradable polymers based on ring-opening polymerization of functionalized epoxides

IN Shastri, Venkatram Prasad

PA USA

SO PCT Int. Appl., 80 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM C08G063-08

ICS C08G063-664

CC 35-5 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 63

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2003000766	A1	20030103	WO 2002-US19485	20020620
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
US 2003050426	A1	20030313	US 2001-886394	20010622
US 6730772	B2	20040504		
PRAI US 2001-886394	A	20010622		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2003000766	ICM	C08G063-08
	ICS	C08G063-664
US 2003050426	ECLA	C08G063/664; C08G065/22; C08L071/02

OS MARPAT 138:73709

AB The present invention relates to degradable polymers having increased functionality, synthesized through ring-opening polymerization of functionalized

epoxides alone or in combination with cyclic esters under mild, controlled conditions. An example of the epoxides is Et 2-methylpent-4-enoate oxide which could be prepared from Et 2-methylpent-4-enoate.

ST degradable polymer functionalized epoxide monomer ring opening polymn

IT Polymers, preparation  
 RL: IMF (Industrial manufacture); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)  
 (biodegradable; manufacture of biocompatible and biodegradable polymers based on ring-opening polymerization of functionalized epoxides)

IT Encapsulants  
 (manufacture of biocompatible and biodegradable polymers based on ring-opening polymerization of functionalized epoxides)

IT Polyethers, preparation  
 RL: IMF (Industrial manufacture); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)  
 (manufacture of biocompatible and biodegradable polymers based on ring-opening polymerization of functionalized epoxides)

IT Polyethers, preparation  
 RL: IMF (Industrial manufacture); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)  
 (polyester-; manufacture of biocompatible and biodegradable polymers based on ring-opening polymerization of functionalized epoxides)

IT Polyesters, preparation  
 RL: IMF (Industrial manufacture); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)  
 (polyether-; manufacture of biocompatible and biodegradable polymers based on ring-opening polymerization of functionalized epoxides)

IT Polymerization  
 (ring-opening; manufacture of biocompatible and biodegradable polymers based on ring-opening polymerization of functionalized epoxides)

IT Drug delivery systems  
 (slow-release; manufacture of biocompatible and biodegradable polymers based on ring-opening polymerization of functionalized epoxides)

IT 480423-48-1P  
 RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation)  
 (manufacture of biocompatible and biodegradable polymers based on ring-opening polymerization of functionalized epoxides)

IT 480423-49-2P 480423-50-5P **480423-51-6P** 480423-52-7P  
**480423-53-8P** 480423-56-1P 480423-57-2P 480423-58-3P  
 480423-59-4P 481040-89-5P, Ethylene oxide-glycolide graft copolymer methyl ether 481040-91-9P, Ethylene oxide-glycolide-L-lactide graft copolymer methyl ether  
 RL: **IMF (Industrial manufacture)**; PRP (Properties); THU (Therapeutic use); BIOL (Biological study); **PREP (Preparation)**; USES (Uses)  
 (manufacture of biocompatible and biodegradable polymers based on ring-opening polymerization of functionalized epoxides)

IT 53399-81-8P, Ethyl 2-methylpent-4-enoate 480423-46-9P 480423-47-0P  
 480423-54-9P 480423-55-0P  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
 (manufacture of biocompatible and biodegradable polymers based on ring-opening polymerization of functionalized epoxides)

IT 480423-45-8P  
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
 (monomer; manufacture of biocompatible and biodegradable polymers based on ring-opening polymerization of functionalized epoxides)

RE.CNT 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

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IT 480423-51-6P 480423-53-8P

RL: IMF (Industrial manufacture); PRP (Properties); THU  
(Therapeutic use); BIOL (Biological study); PREP (Preparation);  
USES (Uses)

(manufacture of biocompatible and biodegradable polymers based on  
ring-opening polymerization of functionalized epoxides)

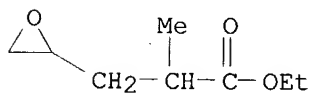
RN 480423-51-6 HCAPLUS

CN Pentonic acid, 4,5-anhydro-2,3-dideoxy-2-methyl-, ethyl ester, polymer  
with (3S,6S)-3,6-dimethyl-1,4-dioxane-2,5-dione and 1,4-dioxane-2,5-dione  
(9CI) (CA INDEX NAME)

CM 1

CRN 480423-45-8

CMF C8 H14 O3

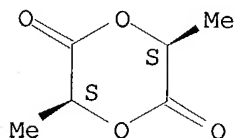


CM 2

CRN 4511-42-6

CMF C6 H8 O4

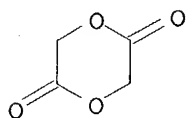
Absolute stereochemistry.



CM 3

CRN 502-97-6

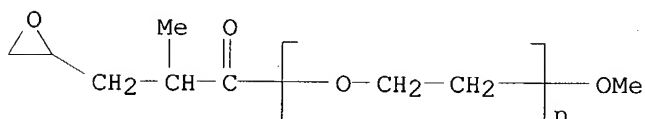
CMF C4 H4 O4



RN 480423-53-8 HCAPLUS  
 CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3S,6S)-, polymer with  
 1,4-dioxane-2,5-dione and  $\alpha$ -(2-methyl-3-oxiranyl-1-oxopropyl)-  
 $\omega$ -methoxypoly(oxy-1,2-ethanediyl), graft (9CI) (CA INDEX NAME)

CM 1

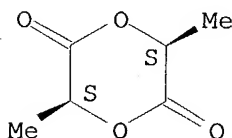
CRN 480423-47-0  
 CMF (C2 H4 O)<sub>n</sub> C7 H12 O3  
 CCI PMS



CM 2

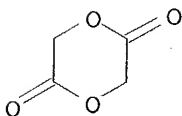
CRN 4511-42-6  
 CMF C6 H8 O4

Absolute stereochemistry.



CM 3

CRN 502-97-6  
 CMF C4 H4 O4



L42 ANSWER 8 OF 20 HCAPLUS COPYRIGHT 2004 ACS on STN  
 AN 2002:346812 HCAPLUS  
 DN 138:78352  
 ED Entered STN: 09 May 2002  
 TI Thermogelling biodegradable hydrogels with a wide range of duration

KATHLEEN FULLER EIC 1700 REMSEN 4B28 571/272-2505

AU Jeong, B.; Gutowska, A.  
 CS Pacific Northwest National Lab. (PNNL), Richland, WA, 99352, USA  
 SO Proceedings - 28th International Symposium on Controlled Release of Bioactive Materials and 4th Consumer & Diversified Products Conference, San Diego, CA, United States, June 23-27, 2001 (2001), Volume 1, 279-280  
 Publisher: Controlled Release Society, Minneapolis, Minn.  
 CODEN: 69CNY8  
 DT Conference  
 LA English  
 CC 63-6 (Pharmaceuticals)  
 AB Polyethylene glycol-g-(DL-lactic acid-co-glycolic acid) (PEG-g-PLGA) and poly(DL-lactic acid-co-glycolic acid)-g-ethylene glycol (PLGA-g-PEG) aqueous solns. with sol-to-gel transition at 30 °C have been developed and the duration of gel could be controlled from one week to two month by varying the composition of the two polymers. The model protein was released from the gel and the release profile was controlled by the composition of a gel.  
 ST PEG lactide glycolide graft copolymer thermogel  
 IT Polymers, biological studies  
 RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (biodegradable; thermogelling biodegradable hydrogels with a wide range of duration)  
 IT Drug delivery systems  
 (hydrogels; thermogelling biodegradable hydrogels with a wide range of duration)  
 IT Polyoxoalkylenes, biological studies  
 RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (polyester-, block, graft; thermogelling biodegradable hydrogels with a wide range of duration)  
 IT Polyesters, biological studies  
 RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (polyoxyalkylene-, block, graft; thermogelling biodegradable hydrogels with a wide range of duration)  
 IT Sol-gel transition  
 (thermogelling biodegradable hydrogels with a wide range of duration)  
 IT 309275-28-3 309760-03-0  
 RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (thermogelling biodegradable hydrogels with a wide range of duration)  
 RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD  
 RE  
 (1) Anon; C & EN News 1999, Aug 30, P29  
 (2) Anon; C & EN News 2000, Sept 18, P49  
 (3) Jeong, B; J Biomed Mater Res 2000, V50(2), P171 HCAPLUS  
 (4) Jeong, B; J Controlled Release 1999, V62, P109 HCAPLUS  
 (5) Jeong, B; J Controlled Release 2000, V63, P155 HCAPLUS  
 (6) Jeong, B; Macromolecules, Submitte 2000  
 (7) Jeong, B; Macromolecules 1999, V32(21), P7064 HCAPLUS  
 (8) Jeong, B; Macromolecules, In Press 2000  
 (9) Rathi, R; WO 018821 A1 2000 HCAPLUS  
 IT 309275-28-3  
 RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (thermogelling biodegradable hydrogels with a wide range of duration)  
 RN 309275-28-3 HCAPLUS  
 CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, polymer with  $\alpha$ -(4-carboxy-1-

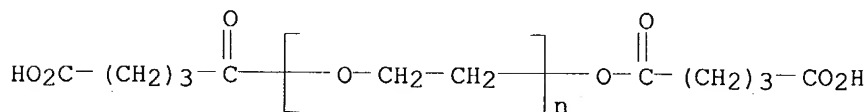
oxobutyl)-ω-(4-carboxy-1-oxobutoxy)poly(oxy-1,2-ethanediyl),  
1,4-dioxane-2,5-dione and α-(oxiranylmethyl)-ω-  
(oxiranylmethoxy)poly(oxy-1,2-ethanediyl), graft (9CI) (CA INDEX NAME)

CM 1

CRN 157598-59-9.

CMF (C2 H4 O)<sub>n</sub> C10 H14 O7

CCI PMS

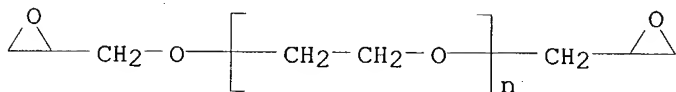


CM 2

CRN 26403-72-5

CMF (C2 H4 O)<sub>n</sub> C6 H10 O3

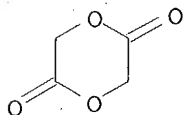
CCI PMS



CM 3

CRN 502-97-6

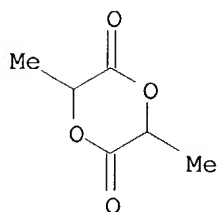
CMF C4 H4 O4



CM 4

CRN 95-96-5

CMF C6 H8 O4



L42 ANSWER 9 OF 20 HCAPLUS COPYRIGHT 2004 ACS on STN  
 AN 2002:293737 HCAPLUS  
 DN 136:310606  
 ED Entered STN: 19 Apr 2002  
 TI Copolymers comprising alkylene carbonate and method of preparing same  
 IN Ree, Moon-Hor; Hwang, Yong-Taek; Moon, Seung-Jae; Kim, Myung-Hwan  
 PA Pohang Iron & Steel Co., Ltd., S. Korea; Pohang University of Science & Technology  
 SO PCT Int. Appl., 41 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA English  
 IC ICM C08G063-64  
 CC 37-3 (Plastics Manufacture and Processing)  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002031023	A1	20020418	WO 2001-KR1715	20011011
	W: DE, JP, US				
	JP 3392411	B1	20030331	JP 2002-534401	20011011
	JP 2004511595	T2	20040415		
	DE 10194334	T	20040422	DE 2001-10194334	20011011
	US 2003013840	A1	20030116	US 2002-149541	20020514
	US 6713593	B2	20040330		
PRAI	KR 2000-59671	A	20001011		
	KR 2000-59672	A	20001011		
	WO 2001-KR1715	W	20011011		

## CLASS

	PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
	WO 2002031023	ICM	C08G063-64
	US 2003013840	ECLA	C08G063/64
AB	The biodegradable copolymers are prepared by the <b>terpolymn.</b> of lactide or $\delta$ -valerolactone and, carbon dioxide (which is an air pollutant source) and alkylene oxide in the presence of a catalyst. Thus, adding 1.349 mol propylene oxide and 0.150 mol lactide to a pressurized reactor containing 1 g dried Zn glutaric acid catalyst under N, closing the reactor with a lid, compressing with CO <sub>2</sub> to 400 psi, reacting at 60° for 40 h, removing CO <sub>2</sub> , diluting with carbon dichloride, washing and working up gave a poly(propylene carbonate-lactide).		
ST	polypropylene carbonate lactide manuf carbon dioxide lactide polymn; alkylene oxide carbon dioxide lactide polymer <b>terpolymn</b> ; biodegradable polyalkylene carbonate polylactide		
IT	Polymers, preparation RL: IMF (Industrial manufacture); PREP (Preparation) (biodegradable; copolymers comprising alkylene carbonate and method of preparing same)		
IT	Polymerization catalysts (copolymers comprising alkylene carbonate and method of preparing same)		
IT	Polyesters, preparation RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation) (polycarbonate-; copolymers comprising alkylene carbonate and method of preparing same)		
IT	Polycarbonates, preparation RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation) (polyester-; copolymers comprising alkylene carbonate and method of preparing same)		



IT 128724-55-0P, Carbon dioxide-propylene oxide- $\delta$ -valerolactone copolymer **412043-14-2P**, Carbon dioxide-lactide-propylene oxide copolymer **412043-15-3P**, Carbon dioxide-ethylene oxide-lactide copolymer 412043-16-4P, Carbon dioxide-cyclohexene oxide-lactide copolymer 412043-17-5P, Carbon dioxide-ethylene oxide- $\delta$ -valerolactone copolymer 412043-18-6P, Carbon dioxide-cyclohexene oxide- $\delta$ -valerolactone copolymer  
 RL: **IMF (Industrial manufacture)**; PRP (Properties); **PREP (Preparation)**  
 (copolymers comprising alkylene carbonate and method of preparing same)

IT 6426-46-6, Zinc glutarate  
 RL: CAT (Catalyst use); USES (Uses)  
 (polymerization catalysts; copolymers comprising alkylene carbonate and method of preparing same)

IT 110-94-1, Glutaric acid 1314-13-2, Zinc oxide, reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reactant for catalyst; copolymers comprising alkylene carbonate and method of preparing same)

RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD  
 RE  
 (1) Anon; US A4891263 1990  
 (2) Anon; US A5120802 1992  
 (3) Anon; EP A709420 1996  
 (4) Anon; JP A1135655 1999  
 (5) Anon; WO A9910404 1999

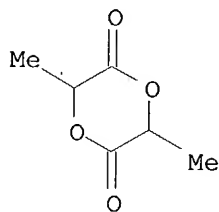
IT **412043-14-2P**, Carbon dioxide-lactide-propylene oxide copolymer **412043-15-3P**, Carbon dioxide-ethylene oxide-lactide copolymer  
 RL: **IMF (Industrial manufacture)**; PRP (Properties); **PREP (Preparation)**  
 (copolymers comprising alkylene carbonate and method of preparing same)

RN 412043-14-2 HCAPLUS  
 CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, polymer with carbon dioxide and methyloxirane (9CI) (CA INDEX NAME)

CM 1  
 CRN 124-38-9  
 CMF C O2

O=C=O

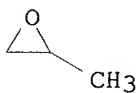
CM 2  
 CRN 95-96-5  
 CMF C6 H8 O4



CM 3

CRN 75-56-9

CMF C3 H6 O



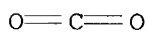
RN 412043-15-3 HCAPLUS

CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, polymer with carbon dioxide and oxirane (9CI) (CA INDEX NAME)

CM 1

CRN 124-38-9

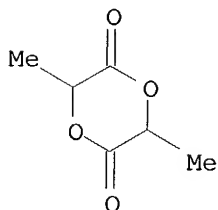
CMF C O2



CM 2

CRN 95-96-5

CMF C6 H8 O4



CM 3

CRN 75-21-8

CMF C2 H4 O



L42 ANSWER 10 OF 20 HCAPLUS COPYRIGHT 2004 ACS on STN  
 AN 2002:256029 HCAPLUS  
 DN 136:284449  
 ED Entered STN: 05 Apr 2002  
 TI Thermogelling biodegradable aqueous block PEG-polyester solution for drug delivery  
 IN Jeong, Byeong Moon; Gutowska, Anna  
 PA Battelle Memorial Institute, USA  
 SO PCT Int. Appl., 51 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA English  
 IC ICM A61K009-51  
 ICS C08L067-02  
 CC 63-6 (Pharmaceuticals)  
 Section cross-reference(s): 35

FAN.CNT 3

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002026215	A2	20020404	WO 2001-US30322	20010927
	WO 2002026215	A3	20030130		
	W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
	RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
	US 2002173586	A1	20021121	US 2001-833460	20010411
	AU 2001094828	A5	20020408	AU 2001-94828	20010927
	EP 1320359	A2	20030625	EP 2001-975509	20010927
	R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR			
PRAI	US 2000-236926P	P	20000928		
	US 2001-833460	A	20010411		
	WO 2001-US30322	W	20010927		

CLASS

	PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
	WO 2002026215	ICM	A61K009-51
		ICS	C08L067-02
US	2002173586	ECLA	A61K009/00M4; A61K009/51; A61K047/34; C08G063/664
AB	Disclosed is a thermogelling biodegradable aqueous polymer solution useful in providing a bioactive agent delivery system. The present invention provides a thermogelling biodegradable aqueous polymer solution with a polyethylene glycol (PEG) block and a biodegradable polyester block, where the blocks are linked to form a polymer of a general structure comprising the formula of An(B), where n is greater than 2 and A is selected from the group consisting of a polyethylene glycol block and a biodegradable polyester block, B is selected from the group consisting of a polyethylene glycol block and a biodegradable polyester block, and A is different from		

B. A PEG-lactide-glycolide copolymer was prepared and its properties determined

- ST PEG polyester biodegradable thermogel drug delivery
- IT Polymers, biological studies
  - RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
  - (biodegradable; thermogelling biodegradable aqueous block PEG-polyester solution for drug delivery)
- IT Drug delivery systems
  - (gels; thermogelling biodegradable aqueous block PEG-polyester solution for drug delivery)
- IT Antibodies and Immunoglobulins
  - RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
  - (monoclonal; thermogelling biodegradable aqueous block PEG-polyester solution for drug delivery)
- IT Polyoxyalkylenes, biological studies
  - RL: PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
  - (polyester-, block; thermogelling biodegradable aqueous block PEG-polyester solution for drug delivery)
- IT Polyesters, biological studies
  - RL: PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
  - (polyoxyalkylene-, block; thermogelling biodegradable aqueous block PEG-polyester solution for drug delivery)
- IT Analgesics
  - Anti-inflammatory agents
  - Antibiotics
  - Anticonvulsants
  - Antidepressants
  - Antimalarials
  - Antitumor agents
  - Drug delivery systems
  - Gene therapy
  - Immunomodulators
  - Micellization
  - Opioid antagonists
  - Radioprotectants
  - Sol-gel transition
  - Vaccines
    - (thermogelling biodegradable aqueous block PEG-polyester solution for drug delivery)
- IT Polyoxyalkylenes, reactions
  - RL: RCT (Reactant); RACT (Reactant or reagent)
  - (thermogelling biodegradable aqueous block PEG-polyester solution for drug delivery)
- IT Enkephalins
  - RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
  - (thermogelling biodegradable aqueous block PEG-polyester solution for drug delivery)
- IT Growth factors, animal
  - RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
  - (thermogelling biodegradable aqueous block PEG-polyester solution for drug delivery)
- IT Hormones, animal, biological studies
  - RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
  - (thermogelling biodegradable aqueous block PEG-polyester solution for drug delivery)
- IT Interleukin 2

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(thermogelling biodegradable aqueous block PEG-polyester solution for drug delivery)

IT Oligonucleotides  
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(thermogelling biodegradable aqueous block PEG-polyester solution for drug delivery)

IT Peptides, biological studies  
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(thermogelling biodegradable aqueous block PEG-polyester solution for drug delivery)

IT Platelet-derived growth factors  
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(thermogelling biodegradable aqueous block PEG-polyester solution for drug delivery)

IT Proteins  
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(thermogelling biodegradable aqueous block PEG-polyester solution for drug delivery)

IT Interferons  
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
( $\alpha$ ; thermogelling biodegradable aqueous block PEG-polyester solution for drug delivery)

IT Interferons  
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
( $\beta$ ; thermogelling biodegradable aqueous block PEG-polyester solution for drug delivery)

IT Interferons  
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
( $\gamma$ ; thermogelling biodegradable aqueous block PEG-polyester solution for drug delivery)

IT 309275-28-3P  
RL: PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)  
(thermogelling biodegradable aqueous block PEG-polyester solution for drug delivery)

IT 108-55-4, Glutaric anhydride 25322-68-3, Peg  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(thermogelling biodegradable aqueous block PEG-polyester solution for drug delivery)

IT 26403-72-5P, Polyethylene glycol diglycidyl ether 157598-59-9P 406499-29-4P  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
(thermogelling biodegradable aqueous block PEG-polyester solution for drug delivery)

IT 50-56-6, Oxytocin, biological studies 50-76-0, Actinomycin d 51-21-8, 5-Fu 58-82-2, Bradykinin 59-05-2, Methotrexate 1066-17-7, Colistin 1393-25-5, Secretin 1404-00-8, Mitomycin 1405-87-4, Bacitracin 1405-97-6, Gramicidin 1406-11-7, Polymyxin 1407-47-2, Angiotensin 1947-37-1, Tetragastrin 5534-95-2, Pentagastrin 8011-61-8, Tyrocidine 9000-94-6, Antithrombin III 9001-25-6, Blood coagulation factor VII 9001-27-8, Blood coagulation factor VIII 9001-28-9, Blood coagulation factor IX 9001-98-3, Rennin 9002-62-4, Prolactin, biological studies 9002-76-0, Gastrin 9003-98-9, Dnase 9004-10-8, Insulin, biological studies 9007-12-9, Calcitonin 9007-92-5, Glucagon, biological studies 9034-39-3, Somatoliberin 9034-40-6, LHRH 9041-92-3 9061-61-4, NGF 11000-17-2, Vasopressin 11056-06-7, Bleomycin 11096-26-7,

Erythropoietin 15663-27-1, Cisplatin 20830-81-3, Daunorubicin 23214-92-8, Doxorubicin 24305-27-9, TRH 25316-40-9, Adriamycin 33069-62-4, Taxol 37228-64-1, Glucocerebrosidase 41575-94-4, Carboplatin 51110-01-1, Somatostatin 60118-07-2, Endorphin 62229-50-9, Urogastrone 81627-83-0, M-CSF 114977-28-5, Taxotere 139639-23-9, Tissue plasminogen activator 143011-72-7, G-CSF  
 RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
 (thermogelling biodegradable aqueous block PEG-polyester solution for drug delivery)

IT 309275-28-3P

RL: PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)  
 (thermogelling biodegradable aqueous block PEG-polyester solution for drug delivery)

RN 309275-28-3 HCAPLUS

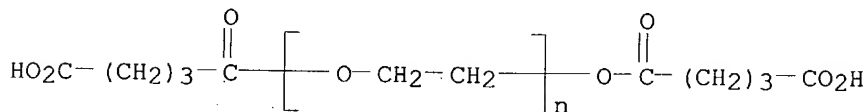
CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, polymer with  $\alpha$ -(4-carboxy-1-oxobutyl)- $\omega$ -(4-carboxy-1-oxobutoxy)poly(oxy-1,2-ethanediyl), 1,4-dioxane-2,5-dione and  $\alpha$ -(oxiranylmethyl)- $\omega$ -(oxiranylmethoxy)poly(oxy-1,2-ethanediyl), graft (9CI) (CA INDEX NAME)

CM 1

CRN 157598-59-9

CMF (C2 H4 O)<sub>n</sub> C10 H14 O7

CCI PMS

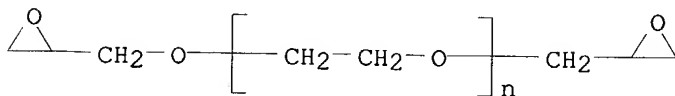


CM 2

CRN 26403-72-5

CMF (C2 H4 O)<sub>n</sub> C6 H10 O3

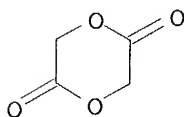
CCI PMS



CM 3

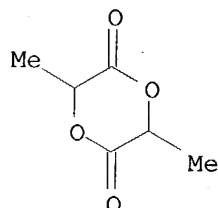
CRN 502-97-6

CMF C4 H4 O4



CM 4

CRN 95-96-5  
CMF C6 H8 O4



L42 ANSWER 11 OF 20 HCAPLUS COPYRIGHT 2004 ACS on STN  
AN 2002:237715 HCAPLUS  
DN 137:10871  
ED Entered STN: 28 Mar 2002  
TI Sol-Gel Transition Temperature of PLGA-g-PEG Aqueous Solutions  
AU Chung, Young-Me; Simmons, Kevin L.; Gutowska, Anna; Jeong, Byeongmoon  
CS Pacific Northwest National Laboratory (PNNL), Richland, WA, 99352, USA  
SO Biomacromolecules (2002), 3(3), 511-516  
CODEN: BOMAF6; ISSN: 1525-7797  
PB American Chemical Society  
DT Journal  
LA English  
CC 63-6 (Pharmaceuticals)  
Section cross-reference(s): 37  
AB Aqueous solns. of poly(lactic acid-co-glycolic acid)-g-polyethylene glycol copolymers exhibited sol-to-gel transition with increasing temperature. A further increase in temperature makes the system flow and form a sol phase again. S.c. injection of a copolymer aqueous solution (0.5 mL) resulted in a formation of a hydrogel depot by temperature-sensitive sol-to-gel transition in a rat model. The reliable determination and control of sol-to-gel transition temps. are the most important issues for this kind of sol-gel reversible hydrogel. The sol-to-gel transition temperature determined by the test tube inverting method, falling ball method, and dynamic mech. anal. coincided within 1-2°. Fine tuning of the sol-to-gel transition temperature was achieved by varying the ionic strength of the polymer solns. and by mixing 2 polymer aqueous solns. with different sol-to-gel transition temps. The sol-to-gel transition temperature of polymer mixture aqueous solns. was well described by an empirical equation of miscible blends, indicating miscibility of the 2 polymer systems in water on the mol. level.  
ST sol gel transition polylactide polyglycolide PEG graft; polylactide polyglycolide PEG graft gel prepn; drug delivery polylactide polyglycolide PEG graft prepn  
IT Drug delivery systems  
(depots; sol-gel transition temperature of PLGA-g-PEG aqueous solns.)  
IT Testing of materials  
(mech.; sol-gel transition temperature of PLGA-g-PEG aqueous solns.)  
IT Polyoxyalkylenes, biological studies  
RL: PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(polyester-, graft; sol-gel transition temperature of PLGA-g-PEG aqueous solns.)

IT Polyesters, biological studies

RL: PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(polyoxyalkylene-, graft; sol-gel transition temperature of PLGA-g-PEG aqueous solns.)

IT Gelation

Hydrogels

Ionic strength

Molecular weight distribution

Phase diagram

Sol-gel transition

Storage modulus

(sol-gel transition temperature of PLGA-g-PEG aqueous solns.)

IT 432549-62-7P 433212-35-2P, Glycolide-lactide-oxirane graft copolymer methyl ether

RL: PRP (Properties); **SPN (Synthetic preparation)**; THU (Therapeutic use); BIOL (Biological study); **PREP (Preparation)**; USES (Uses)

(sol-gel transition temperature of PLGA-g-PEG aqueous solns.)

RE.CNT 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD RE

- (1) Bulmus, V; Bioconjugate Chem 2000, V11(1), P78 HCAPLUS
- (2) Cho, K; Macromol Rapid Commun 1999, V20, P598 HCAPLUS
- (3) Gilbert, J; J Controlled Release 1987, V5, P113 HCAPLUS
- (4) Gutowska, A; Anat Rec 2001, V263, P342 HCAPLUS
- (5) Jeong, B; Chem Commun 2001, V16, P1516
- (6) Jeong, B; J Controlled Release 2000, V63, P155 HCAPLUS
- (7) Jeong, B; Macromolecules 1999, V32(21), P7064 HCAPLUS
- (8) Jeong, B; Macromolecules 2000, V33, P8317 HCAPLUS
- (9) Linhard, J; Langmuir 2000, V16, P122
- (10) Malmsten, M; Macromolecules 1992, V25, P5440 HCAPLUS
- (11) Mingvanish, W; J Phys Chem B 1999, V103, P11269 HCAPLUS
- (12) Mott, R; Applied fluid mechanics, 3rd ed 1990, P33
- (13) Olabisi, O; Polymer-polymer miscibility 1979, P281
- (14) Rosen, S; Fundamental principles of polymeric materials 1982, P94
- (15) Tanodekaew, S; Macromol Chem Phys 1997, V198, P3385 HCAPLUS
- (16) Wanka, G; Colloid Polymer Sci 1990, V268, P101 HCAPLUS
- (17) Yoshida, T; Polymer 1998, V39, P1119 HCAPLUS
- (18) Zhang, J; Macromolecules 2000, V33, P102 HCAPLUS

IT 432549-62-7P

RL: PRP (Properties); **SPN (Synthetic preparation)**; THU (Therapeutic use); BIOL (Biological study); **PREP (Preparation)**; USES (Uses)

(sol-gel transition temperature of PLGA-g-PEG aqueous solns.)

RN 432549-62-7 HCAPLUS

CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, polymer with 1,4-dioxane-2,5-dione and  $\alpha$ -methyl- $\omega$ -(oxiranylmethoxy)poly(oxy-1,2-ethanediyl), graft (9CI) (CA INDEX NAME)

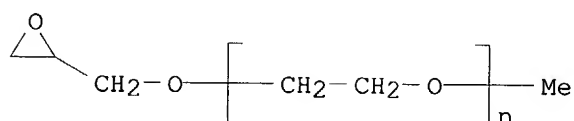
CM 1

CRN 40349-67-5

CMF (C2 H4 O)n C4 H8 O2

CCI PMS

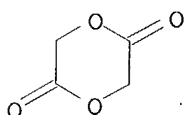




CM 2

CRN 502-97-6

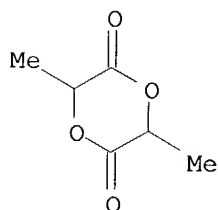
CMF C4 H4 O4



CM 3

CRN 95-96-5

CMF C6 H8 O4



L42 ANSWER 12 OF 20 HCAPLUS COPYRIGHT 2004 ACS on STN  
 AN 2001:661953 HCAPLUS  
 DN 135:308836  
 ED Entered STN: 11 Sep 2001  
 TI Biodegradable thermoreversible hydrogel and their biomedical applications  
 AU Jeong, Byeongmoon; Gutowska, Anna  
 CS Pacific Northwest National laboratory (PNNL), Richland, WA, 99352, USA  
 SO Polymer Preprints (American Chemical Society, Division of Polymer  
 Chemistry) (2001), 42(2), 105-106  
 CODEN: ACPPAY; ISSN: 0032-3934  
 PB American Chemical Society, Division of Polymer Chemistry  
 DT Journal; (computer optical disk)  
 LA English  
 CC 63-8 (Pharmaceuticals)  
 AB The thermo-gelling biodegradable graft copolymer systems, poly(ethylene glycol)-g-poly(lactic/glycolic acid) and poly(lactic/glycolic acid)-g-poly(ethylene glycol), were synthesized. The sol-gel transition temperature and the application to pattern delivery of these thermoreversible hydrogels were investigated. Release of bovine insulin was studied using PLGA-g-PEG and PEG-g-PLGA formulation with 50/50 weight ratio. The 50/50 polymer formulation showed promising properties for an injectable insulin release. Sol-gel transition temps. of the system in test-tube inverting

method and dynamic rheometer showed the same results. This system, with simple sterilization by 0.2  $\mu$  filtration, presents a potential application in protein delivery and tissue engineering.

- ST graft copolymer thermoreversible hydrogel protein delivery; tissue engineering thermoreversible hydrogel graft copolymer; polyethylene glycol polylactide polyglycolide graft hydrogel; sol gel transition graft copolymer biomedical
- IT Drug delivery systems  
(biodegradable thermoreversible graft copolymer hydrogels for protein delivery and tissue engineering)
- IT Proteins, general, biological studies  
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(biodegradable thermoreversible graft copolymer hydrogels for protein delivery and tissue engineering)
- IT Animal tissue  
(engineering; biodegradable thermoreversible graft copolymer hydrogels for protein delivery and tissue engineering)
- IT Sol-gel transition  
(temperature; biodegradable thermoreversible graft copolymer hydrogels for protein delivery and tissue engineering)
- IT Engineering  
(tissue; biodegradable thermoreversible graft copolymer hydrogels for protein delivery and tissue engineering)
- IT 309275-28-3 309760-03-0  
RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(biodegradable thermoreversible graft copolymer hydrogels for protein delivery and tissue engineering)
- IT 11070-73-8, Bovine insulin  
RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(release of; biodegradable thermoreversible graft copolymer hydrogels for protein delivery and tissue engineering)

RE.CNT 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD  
RE

- (1) An, Y; US 6103528 2001 HCAPLUS
- (2) Bromberg, L; J Phys Chem B 1998, V102, P1956 HCAPLUS
- (3) Chenite, A; 6th World Biomater Congress Transactions 2000, P549
- (4) Jeong, B; Colloids and Surfaces:B Biointerfaces 1999, V16, P185 HCAPLUS
- (5) Jeong, B; J Controlled Release 2000, V63, P155 HCAPLUS
- (6) Jeong, B; Macromolecules 1999, V32, P7064 HCAPLUS
- (7) Jeong, B; Macromolecules 2000, V33, P8317 HCAPLUS
- (8) Jeong, B; Macromolecules, submitted 2001
- (9) Jeong, B; Nature 1997, V388, P860 HCAPLUS
- (10) Malmsten, M; Macromolecules 1992, V25, P5440 HCAPLUS
- (11) Wyatt, P; Anal Chim Acta 1993, V272, P1 HCAPLUS

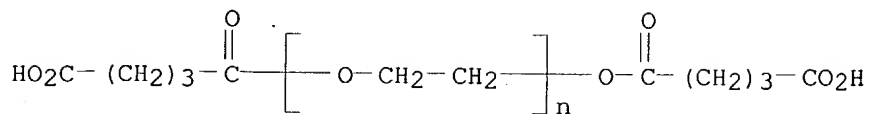
- IT 309275-28-3  
RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(biodegradable thermoreversible graft copolymer hydrogels for protein delivery and tissue engineering)

RN 309275-28-3 HCAPLUS

CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, polymer with  $\alpha$ -(4-carboxy-1-oxobutyl)- $\omega$ -(4-carboxy-1-oxobutoxy)poly(oxy-1,2-ethanediyl), 1,4-dioxane-2,5-dione and  $\alpha$ -(oxiranylmethyl)- $\omega$ -(oxiranylmethoxy)poly(oxy-1,2-ethanediyl), graft (9CI) (CA INDEX NAME)

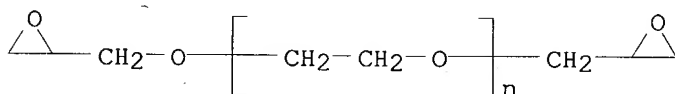
CM 1

CRN 157598-59-9  
 CMF (C2 H4 O)<sub>n</sub> C10 H14 O7  
 CCI PMS



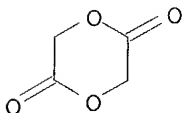
CM 2

CRN 26403-72-5  
 CMF (C2 H4 O)<sub>n</sub> C6 H10 O3  
 CCI PMS



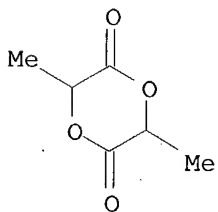
CM 3

CRN 502-97-6  
 CMF C4 H4 O4



CM 4

CRN 95-96-5  
 CMF C6 H8 O4



L42 ANSWER 13 OF 20 HCAPLUS COPYRIGHT 2004 ACS on STN  
 AN 2001:293676 HCAPLUS  
 DN 134:311582  
 ED Entered STN: 25 Apr 2001

KATHLEEN FULLER EIC 1700 REMSEN 4B28 571/272-2505

TI Preparation of biodegradable aliphatic polyester grafted with polyether  
 IN Park, Jung-Ki; Cho, Kuk Young; Kim, Chang-Hyeon  
 PA Korea Advanced Institute of Science and Technology, S. Korea  
 SO U.S., 5 pp.  
 CODEN: USXXAM  
 DT Patent  
 LA English  
 IC ICM C08G063-08  
 ICS C08G063-06; C08G065-08  
 NCL 525408000  
 CC 35-7 (Chemistry of Synthetic High Polymers)  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6221977	B1	20010424	US 1999-405753	19990927
	KR 2000042641	A	20000715	KR 1998-58890	19981226
PRAI	KR 1998-58890	A	19981226		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 6221977	ICM	C08G063-08
	ICS	C08G063-06; C08G065-08
	NCL	525408000

AB Present invention provides a process for preparing biodegradable aliphatic polyester grafted with polyether which comprises a step of ring opening polymerization of a hydrophilic monomer of epoxide-substituted ethylene glycol

Me

ether oligomer or ethyleneglycol oligomer, and a biocompatible cyclic monomer forming polymer backbone with the monomer, and a nontoxic biodegradable polymer prepared therefrom. In accordance with the invention, the graft ratio and mol. weight of polyether in the biodegradable aliphatic polyester can be easily controlled, and the hydrophilicity and crystallinity are also regulated thereby. The biodegradable polymer of the invention has features of minimized protein adhesion and superior softness, due to its hydrophilic side-chain. Accordingly, it can be applied as biomedical polymers such as the matrixes for drug delivery system, suture thread, or bioabsorbable and H2O-soluble polymers. Thus, polyethylene glycol Me ether (average mol. weight 120) 6.492, sodium hydroxide 6.484, and epichlorohydrin 10 g were added to give polyethylene glycol Me glycidyl ether, 0.977 g of which was added to 7.37 g of L-lactic acid and 18 mg stannous 2-ethylhexanoate to give a graft polymer having average mol. weight 8,000.

ST biodegradable aliph polyester grafted polyether

IT Polymers, preparation

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(biodegradable; preparation of biodegradable aliphatic polyester grafted with polyether)

IT Ring opening catalysts

(preparation of biodegradable aliphatic polyester grafted with polyether)

IT 40349-67-5P, Polyethylene glycol methyl glycidyl ether

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(preparation of biodegradable aliphatic polyester grafted with polyether)

IT 253683-88-4P 335299-19-9P 335299-20-2P 335299-21-3P

335299-22-4P 335299-24-6P

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(preparation of biodegradable aliphatic polyester grafted with polyether)  
IT 106-89-8, Epichlorohydrin, reactions 9004-74-4, Polyethylene glycol methyl ether

RL: RCT (Reactant); RACT (Reactant or reagent)

(preparation of biodegradable aliphatic polyester grafted with polyether)  
IT 97-93-8, Triethylaluminum, uses 100-99-2, Triisobutylaluminum, uses 301-10-0, Stannous 2-ethylhexanoate

RL: CAT (Catalyst use); USES (Uses)

(ring opening catalyst; preparation of biodegradable aliphatic polyester grafted with polyether)

RE.CNT 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Andrei; US 5162174 1992 HCAPLUS
- (2) Anon; Journal of Polymer Science:Part A: Polymer Chemistry 1999, V37, P1513
- (3) Anon; Macromolecules 1977, V30, P4295
- (4) Anon; Macromolecules 1998, V31, P4662
- (5) Anon; Macromolecules 1998, V31, P8766
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- (7) Anon; The 5th International Symposium on Polymers for Advanced Technologies 1999
- (8) Cha; US 5702717 1997 HCAPLUS
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IT 335299-19-9P 335299-20-2P 335299-24-6P

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(preparation of biodegradable aliphatic polyester grafted with polyether)

RN 335299-19-9 HCAPLUS

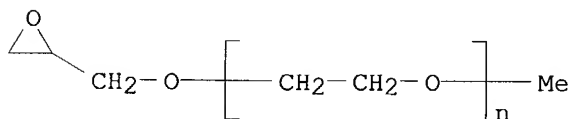
CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3S,6S)-, polymer with 1,4-dioxane-2,5-dione and  $\alpha$ -methyl- $\omega$ -(oxiranylmethoxy)poly(oxy-1,2-ethanediyl), graft (9CI) (CA INDEX NAME)

CM 1

CRN 40349-67-5

CMF (C2 H4 O)<sub>n</sub> C4 H8 O2

CCI PMS

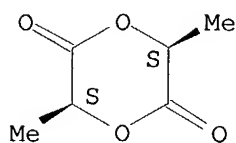


CM 2

CRN 4511-42-6

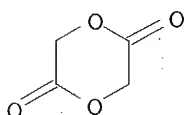
CMF C6 H8 O4

Absolute stereochemistry.



CM 3

CRN 502-97-6  
CMF C4 H4 O4

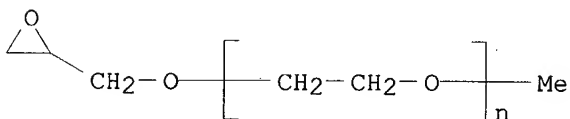


RN 335299-20-2 HCAPLUS

CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3S,6S)-, polymer with  
 $\alpha$ -methyl- $\omega$ -(oxiranylmethoxy)poly(oxy-1,2-ethanediyl) and  
2-oxepanone, graft (9CI) (CA INDEX NAME)

CM 1

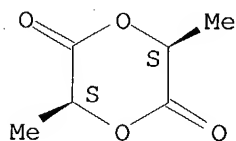
CRN 40349-67-5  
CMF (C2 H4 O)<sub>n</sub> C4 H8 O2  
CCI PMS



CM 2

CRN 4511-42-6  
CMF C6 H8 O4

Absolute stereochemistry.



CM 3

CRN 502-44-3  
CMF C6 H10 O2



L42 ANSWER 14 OF 20 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 2000:726016 HCAPLUS

DN 134:17970

ED Entered STN: 15 Oct 2000

TI Thermogelling Biodegradable Polymers with Hydrophilic Backbones:  
PEG-g-PLGA

AU Jeong, Byeongmoon; Kibbey, Merinda R.; Birnbaum, Jerome C.; Won, You-Yeon;  
Gutowska, Anna

CS Pacific Northwest National Lab. (PNNL), Richland, WA, 99352, USA

SO Macromolecules (2000); 33(22), 8317-8322

CODEN: MAMOBX; ISSN: 0024-9297

PB American Chemical Society

DT Journal

LA English

CC 36-7 (Physical Properties of Synthetic High Polymers)

Section cross-reference(s): 37, 63

AB The aqueous solns. of poly(ethylene glycol) grafted with poly(lactic  
acid-co-glycolic acid) flow freely at room temperature but form gels at higher  
temperature The existence of micelles in water at low polymer concentration  
was

confirmed by cryo-transmission electron microscopy and dye solubilization  
studies. The micellar diameter is about 9 nm, and the critical micelle  
concentration

is in a range of 0.01-0.05 weight %. The critical gel concentration, above  
which a gel

phase appears, was 16 weight %, and the sol-to-gel transition temperature was  
slightly affected by the concentration between 16 and 25 weight %. At  
sol-to-gel

transition, viscosity and modulus increased abruptly, and <sup>13</sup>C NMR showed  
mol. motion of hydrophilic poly(ethylene glycol) backbones decreased while  
that of hydrophobic poly(lactic acid-co-glycolic acid) side chains  
increased. The hydrogel of PEG-g-PLGA with hydrophilic backbones was  
transparent during degradation and remained a gel for 1 wk, suggesting a  
promising material for short-term drug delivery.

ST biodegradable polymer thermogelling; polyoxyethylene grafted lactic acid  
glycolic acid copolymer thermogelling

IT Polymers, properties

RL: PRP (Properties)

(biodegradable; thermogelling biodegradable polymers with hydrophilic  
backbones)

IT Viscosity

(complex; thermogelling biodegradable polymers with hydrophilic  
backbones)

IT Polyoxyalkylenes, properties

RL: PRP (Properties)

(graft polymers; thermogelling biodegradable polymers with hydrophilic  
backbones)

IT Entropy

Free energy

(of gelation; thermogelling biodegradable polymers with hydrophilic  
backbones)

IT Phase transition enthalpy

(sol-gel; thermogelling biodegradable polymers with hydrophilic  
backbones)

IT Gelation

(thermal; thermogelling biodegradable polymers with hydrophilic  
backbones)

IT Critical micelle concentration

Micelles



Phase diagram  
 Sol-gel transition  
 UV and visible spectra  
 Young's modulus  
 (thermogelling biodegradable polymers with hydrophilic backbones)  
 IT 309275-28-3 309760-03-0, Ethylene oxide-glycolide-DL-lactide  
 graft copolymer  
 RL: PRP (Properties)  
 (thermogelling biodegradable polymers with hydrophilic backbones)

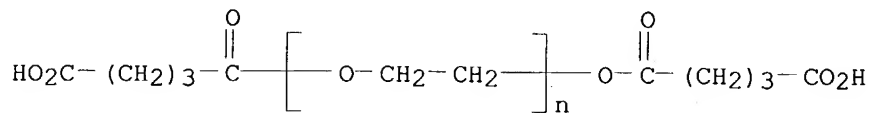
RE.CNT 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD  
 RE

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IT 309275-28-3  
 RL: PRP (Properties)  
 (thermogelling biodegradable polymers with hydrophilic backbones)  
 RN 309275-28-3 HCAPLUS  
 CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, polymer with  $\alpha$ -(4-carboxy-1-oxobutyl)- $\omega$ -(4-carboxy-1-oxobutoxy)poly(oxy-1,2-ethanediyl), 1,4-dioxane-2,5-dione and  $\alpha$ -(oxiranylmethyl)- $\omega$ -(oxiranylmethoxy)poly(oxy-1,2-ethanediyl), graft (9CI) (CA INDEX NAME)

CM 1

CRN 157598-59-9  
 CMF (C2 H4 O)<sub>n</sub> C10 H14 O7  
 CCI PMS

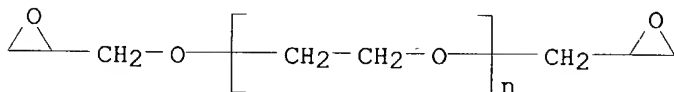


CM 2

CRN 26403-72-5

CMF (C2 H4 O)<sub>n</sub> C6 H10 O3

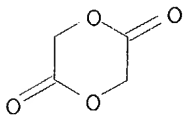
CCI PMS



CM 3

CRN 502-97-6

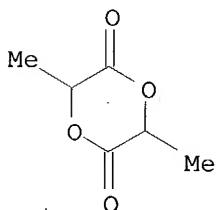
CMF C4 H4 O4



CM 4

CRN 95-96-5

CMF C6 H8 O4



L42 ANSWER 15 OF 20 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1999:107037 HCAPLUS

DN 130:210118

ED Entered STN: 16 Feb 1999

TI Manufacture of biodegradable, heat-resistant, and high-molecular-weight lactic acid-based polyethers

IN Imamura, Shoji

PA Dainippon Ink and Chemicals, Inc., Japan

SO Jpn. Kokai Tokkyo Koho, 12 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 IC ICM C08G018-48  
 ICS C08G065-26; C08G065-32  
 CC 35-5 (Chemistry of Synthetic High Polymers)  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 11035655	A2	19990209	JP 1997-192395	19970717
PRAI	JP 1997-192395		19970717		

## CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
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JP 11035655	ICM	C08G018-48
	ICS	C08G065-26; C08G065-32

- AB Title polyethers are manufactured by reaction of (50-98):(2-50) lactide (I)-polyethylene glycol (II) copolymer (A) with (50-98):(2-50) I-polypropylene glycol (III) copolymer (B) at weight ratio of A/B (10-80)/(20-90) in the presence of 0.1-10% (based on A and B) chain extenders having functional groups reactive with OH. Alternatively, the polyethers may be manufactured by reaction of (50-98):(2-50) copolymers (C) of I and ethylene oxide-propylene oxide block copolymer with 0.1-10% (based on C) of the chain extenders. Thus, 95.0 g I-I was reacted with 2.5 g II and 2.5 g III and subsequently with 1.5 g 2,4-TDI to give a copolymer (Mw 74,000), whose test piece showed temperature at E' 3900 MPa (JIS K 7198 A) 55° and loss rate of Mw 68% after 3-mo burial in a compost.
- ST lactide polyethylene glycol polyester polyether manuf; polypropylene glycol polyester polyoxyalkylene heat resistant; TDI ethylene oxide polyoxyalkylene polyurethane biodegradable; propylene oxide polyester polyoxyalkylene block manuf; lactic acid polyether high mol wt
- IT Polymers, preparation  
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (biodegradable; manufacture of biodegradable, heat-resistant, and high-mol.-weight polyester-polyoxyalkylenes)
- IT Isocyanates  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (di-, chain extender; manufacture of biodegradable, heat-resistant, and high-mol.-weight polyester-polyoxyalkylenes)
- IT Carboxylic acids, reactions  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (dicarboxylic, derivs., chain extender; manufacture of biodegradable, heat-resistant, and high-mol.-weight polyester-polyoxyalkylenes)
- IT Epoxides  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (diepoxides, chain extender; manufacture of biodegradable, heat-resistant, and high-mol.-weight polyester-polyoxyalkylenes)
- IT Polyoxyalkylenes, preparation  
 Polyoxyalkylenes, preparation  
 Polyoxyalkylenes, preparation  
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (epoxy-polyester-, block, lactide-based; manufacture of biodegradable, heat-resistant, and high-mol.-weight polyester-polyoxyalkylenes)
- IT Polyesters, preparation  
 Polyesters, preparation  
 Polyesters, preparation

RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (epoxy-polyoxyalkylene-, block, lactide-based; manufacture of biodegradable, heat-resistant, and high-mol.-weight polyester-polyoxyalkylenes)

IT Heat-resistant materials  
 (manufacture of biodegradable, heat-resistant, and high-mol.-weight polyester-polyoxyalkylenes)

IT Polyoxyalkylenes, preparation  
 Polyoxyalkylenes, preparation  
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (polyester-, block, lactide-based; manufacture of biodegradable, heat-resistant, and high-mol.-weight polyester-polyoxyalkylenes)

IT Polyoxyalkylenes, preparation  
 Polyoxyalkylenes, preparation  
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (polyester-, lactide-based; manufacture of biodegradable, heat-resistant, and high-mol.-weight polyester-polyoxyalkylenes)

IT Epoxy resins, preparation  
 Epoxy resins, preparation  
 Epoxy resins, preparation  
 Polyurethanes, preparation  
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (polyester-polyoxyalkylene-, block, lactide-based; manufacture of biodegradable, heat-resistant, and high-mol.-weight polyester-polyoxyalkylenes)

IT Polyesters, preparation  
 Polyesters, preparation  
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (polyoxyalkylene-, block, lactide-based; manufacture of biodegradable, heat-resistant, and high-mol.-weight polyester-polyoxyalkylenes)

IT Polyesters, preparation  
 Polyesters, preparation  
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (polyoxyalkylene-, lactide-based; manufacture of biodegradable, heat-resistant, and high-mol.-weight polyester-polyoxyalkylenes)

IT 220926-44-3P, L-Lactide-polyethylene glycol-polypropylene glycol-2,4-TDI block copolymer 220926-45-4P, Dimethyl succinate-D-lactide-L-lactide-polyethylene glycol-polypropylene glycol block copolymer 220926-46-5P, D-Lactide-L-lactide-polyethylene glycol-polypropylene glycol-pyromellitic anhydride copolymer 220926-47-6P, Ethylene glycol diglycidyl ether-L-lactide-polyethylene glycol-polypropylene glycol block copolymer 220926-48-7P, Hexamethylene diisocyanate-D-lactide-L-lactide-polyethylene glycol-polypropylene glycol block copolymer 220926-49-8P, Isophorone diisocyanate-D-lactide-L-lactide-polyethylene glycol-polypropylene glycol block copolymer 220926-50-1P, Bisphenol A diglycidyl ether-L-lactide-polyethylene glycol-polypropylene glycol block copolymer 220926-51-2P, D-Lactide-L-lactide-polyethylene glycol-polypropylene glycol-sebacic acid block copolymer 220926-52-3P, 1,6-Hexanediol diglycidyl ether-L-lactide-polyethylene glycol-polypropylene glycol block copolymer 220926-53-4P, L-Lactide-Newpol PE 61-pyromellitic anhydride copolymer 220926-54-5P, Isophorone diisocyanate-L-lactide-Newpol PE 75 block copolymer 220926-55-6P, D-Lactide-L-lactide-Newpol PE 128-polyethylene glycol diglycidyl ether copolymer, block  
 RL: IMF (Industrial manufacture); PRP (Properties); TEM

(Technical or engineered material use); **PREP (Preparation)**; USES  
(Uses)

(manufacture of biodegradable, heat-resistant, and high-mol.-weight polyester-polyoxyalkylenes)

IT **220926-47-6P**, Ethylene glycol diglycidyl ether-L-lactide-polyethylene glycol-polypropylene glycol block copolymer  
**220926-52-3P**, 1,6-Hexanediol diglycidyl ether-L-lactide-polyethylene glycol-polypropylene glycol block copolymer  
**220926-55-6P**, D-Lactide-L-lactide-Newpol PE 128-polyethylene glycol diglycidyl ether copolymer, block

RL: **IMF (Industrial manufacture)**; PRP (Properties); TEM

(Technical or engineered material use); **PREP (Preparation)**; USES  
(Uses)

(manufacture of biodegradable, heat-resistant, and high-mol.-weight polyester-polyoxyalkylenes)

RN 220926-47-6 HCAPLUS

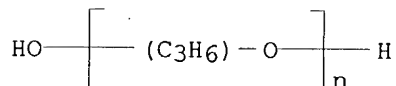
CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3S,6S)-, polymer with 2,2'-[1,2-ethanediylbis(oxymethylene)]bis[oxirane],  $\alpha$ -hydro- $\omega$ -hydroxypoly(oxy-1,2-ethanediyl) and  $\alpha$ -hydro- $\omega$ -hydroxypoly[oxy(methyl-1,2-ethanediyl)], block (9CI) (CA INDEX NAME)

CM 1

CRN 25322-69-4

CMF (C3 H6 O)<sub>n</sub> H2 O

CCI IDS, PMS

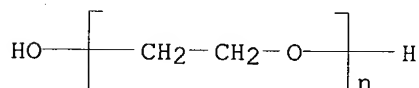


CM 2

CRN 25322-68-3

CMF (C2 H4 O)<sub>n</sub> H2 O

CCI PMS

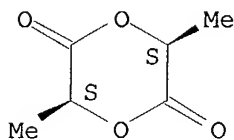


CM 3

CRN 4511-42-6

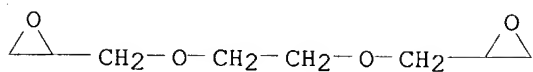
CMF C6 H8 O4

Absolute stereochemistry.



CM 4

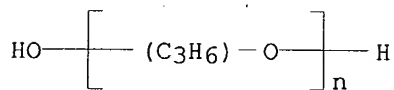
CRN 2224-15-9  
CMF C8 H14 O4



RN 220926-52-3 HCAPLUS  
CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3S,6S)-, polymer with  
2,2'-[1,6-hexanediylbis(oxyethylene)]bis[oxirane],  $\alpha$ -hydro- $\omega$ -  
hydroxypoly(oxy-1,2-ethanediyl) and  $\alpha$ -hydro- $\omega$ -  
hydroxypoly[oxy(methyl-1,2-ethanediyl)], block (9CI) (CA INDEX NAME)

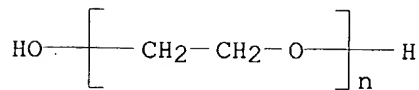
CM 1

CRN 25322-69-4  
CMF (C3 H6 O)<sub>n</sub> H2 O  
CCI IDS, PMS



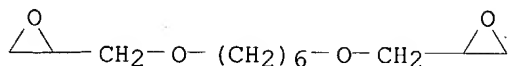
CM 2

CRN 25322-68-3  
CMF (C2 H4 O)<sub>n</sub> H2 O  
CCI PMS



CM 3

CRN 16096-31-4  
CMF C12 H22 O4

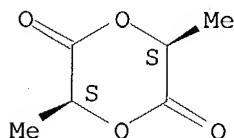


CM 4

CRN 4511-42-6

CMF C6 H8 O4

Absolute stereochemistry.



RN 220926-55-6 HCAPLUS

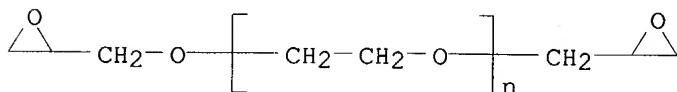
CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, (3R,6R)-, polymer with (3S,6S)-3,6-dimethyl-1,4-dioxane-2,5-dione, methyloxirane, oxirane and  $\alpha$ -(oxiranylmethyl)- $\omega$ -(oxiranylmethoxy)poly(oxy-1,2-ethanediyl), block (9CI) (CA INDEX NAME)

CM 1

CRN 26403-72-5

CMF (C2 H4 O)<sub>n</sub> C6 H10 O3

CCI PMS

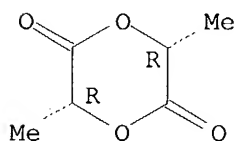


CM 2

CRN 13076-17-0

CMF C6 H8 O4

Absolute stereochemistry.

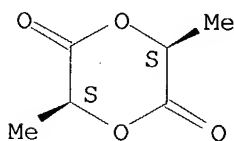


CM 3

CRN 4511-42-6

CMF C6 H8 O4

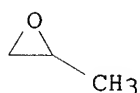
Absolute stereochemistry.



CM 4

CRN 75-56-9

CMF C3 H6 O



CM 5

CRN 75-21-8

CMF C2 H4 O



L42 ANSWER 16 OF 20 HCAPLUS COPYRIGHT 2004 ACS on STN  
 AN 1998:767644 HCAPLUS  
 DN 130:100606  
 ED Entered STN: 08 Dec 1998  
 TI Tailoring polymer surfaces for controlled cell behavior  
 AU Mayes, A. M.; Irvine, D. J.; Griffith, L. G.  
 CS Dept. of Materials Science and Engineering, Massachusetts Institute of  
 Technology, Cambridge, MA, 02139, USA  
 SO Materials Research Society Symposium Proceedings (1998), 530(Biomaterials  
 Regulating Cell Function and Tissue Development), 73-84  
 CODEN: MRSPDH; ISSN: 0272-9172  
 PB Materials Research Society  
 DT Journal  
 LA English  
 CC 63-7 (Pharmaceuticals)  
 AB An ideal surface for many biomaterials applications would resist  
 nonspecific protein adsorption while at the same time providing a means  
 for specifically signaling cells to guide survival, growth, migration, and  
 differentiation. This work was directed towards the investigation of  
 model systems and clin.-applicable materials which provide both of these  
 surface requirements. Model systems were prepared by chemical grafting  
 end-functionalized star poly(ethylene oxide) (PEO) to surfaces. The  
 end-grafted polymers provide a means for cell-signaling through coupling  
 of peptides to the free chain ends. Protein adsorption on star vs. linear  
 grafted layers was compared. To further understand these results, neutron



reflectivity studies were carried out in situ for solvated PEO surfaces to determine the concentration profiles of the swollen grafted layers.

Surprisingly,

grafted PEO layers which resist protein adsorption have low concns. of polymer segments throughout the swollen layer. We find that dense star architectures which might be expected to impart improved protein resistance in fact allow small proteins to adsorb. For clin. materials, a novel approach to the surface modification of poly(lactide) (PLA) has been taken by surface segregating a comb copolymer containing a PLA backbone and PEG teeth. The ends of the teeth provide sites for surface tethering of peptide ligands. Comb surfaces without tethered ligands are cell adhesion resistant, indicating strong protein adsorption resistance. By then incorporating an adhesion ligand, modulation of cell morphol. on comb surfaces was demonstrated. Finally, the surface segregation of the comb to the surface of PLA was shown via cell attachment assays and XPS measurements.

- ST polymer surface cell behavior biomaterial; protein adsorption polymer surface cell behavior biomaterial
- IT Prosthetic materials and Prosthetics  
(implants; tailoring polymer surfaces for controlled cell behavior)
- IT Polyoxyalkylenes, biological studies  
Polyoxyalkylenes, biological studies  
RL: PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)  
(polyester-, block; tailoring polymer surfaces for controlled cell behavior)
- IT Polyesters, biological studies  
Polyesters, biological studies  
RL: PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)  
(polyoxyalkylene-, block; tailoring polymer surfaces for controlled cell behavior)
- IT Adsorption  
Animal cell  
Animal tissue culture  
Cell adhesion  
Fibroblast  
Quantum chemistry  
(tailoring polymer surfaces for controlled cell behavior)
- IT Proteins, general, processes  
RL: PEP (Physical, engineering or chemical process); PROC (Process)  
(tailoring polymer surfaces for controlled cell behavior)
- IT Polyoxyalkylenes, biological studies  
RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(tailoring polymer surfaces for controlled cell behavior)
- IT Polymers, biological studies  
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(tailoring polymer surfaces for controlled cell behavior)
- IT **219320-29-3P**  
RL: PRP (Properties); **SPN (Synthetic preparation)**; THU (Therapeutic use); BIOL (Biological study); **PREP (Preparation)**; USES (Uses)  
(tailoring polymer surfaces for controlled cell behavior)
- IT 25322-68-3, Polyethylene glycol 152231-28-2  
RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(tailoring polymer surfaces for controlled cell behavior)
- IT 152195-10-3

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(tailoring polymer surfaces for controlled cell behavior)

RE.CNT 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD  
RE

- (1) Gilding, D; Polymer 1979, V20, P1459 HCAPLUS
- (2) Gross, R; Macromol 1988, V21, P2657 HCAPLUS
- (3) Gu, X; Synthesis 1985, P649 HCAPLUS
- (4) Hammer, D; Annu Rev Mater Sci 1996, V26, P651 HCAPLUS
- (5) Hern, D; J Biomed Mater Res 1998, V39, P266 HCAPLUS
- (6) Hubbell, J; Bio/Tech 1995, V13, P565 HCAPLUS
- (7) Irvine, D; J Biomed Mater Res 1998, V40, P498 HCAPLUS
- (8) Irvine, D; Macromol 1996, V29, P6037 HCAPLUS
- (9) Kitchens, T; Phys Rev Lett 1974, V32, P791 HCAPLUS
- (10) Kornberg, L; Proc Natl Acad Sci USA 1991, V88, P8392 HCAPLUS
- (11) Kuhl, P; Nat Med 1996, V2, P1022 HCAPLUS
- (12) Lee, J; Prog Polym Sci 1995, V20, P1043 HCAPLUS
- (13) Nilsson, K; Meth Enzymol 1984, V104, P56 HCAPLUS
- (14) Rein, D; Acta Polym 1993, V44, P225 HCAPLUS
- (15) Scheutjens, J; J Phys Chem 1979, V83, P1619 HCAPLUS
- (16) Szleifer, I; Biophys J 1997, V72, P595 HCAPLUS

IT 219320-29-3P

RL: PRP (Properties); SPN (Synthetic preparation); THU  
(Therapeutic use); BIOL (Biological study); PREP (Preparation);  
USES (Uses)

(tailoring polymer surfaces for controlled cell behavior)

RN 219320-29-3 HCAPLUS

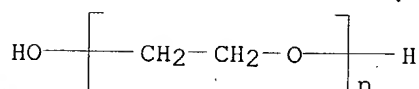
CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, polymer with (chloromethyl)oxirane,  
α-hydro-ω-hydroxypoly(oxy-1,2-ethanediyl) and  
α-methyl-ω-hydroxypoly(oxy-1,2-ethanediyl), graft (9CI) (CA  
INDEX NAME)

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CRN 25322-68-3

CMF (C2 H4 O)n H2 O

CCI PMS

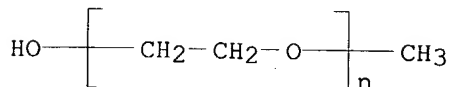


CM 2

CRN 9004-74-4

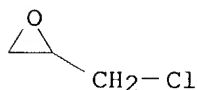
CMF (C2 H4 O)n C H4 O

CCI PMS



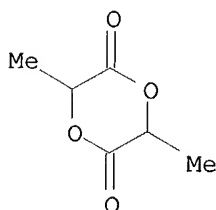
CM 3

CRN 106-89-8  
CMF C3 H5 Cl O



CM 4

CRN 95-96-5  
CMF C6 H8 O4



L42 ANSWER 17 OF 20 HCAPLUS COPYRIGHT 2004 ACS on STN  
AN 1998:651029 HCAPLUS  
DN 129:303000  
ED Entered STN: 14 Oct 1998  
TI Preparation of lactide-based polyesters  
IN Takahashi, Akio  
PA Dainippon Ink and Chemicals, Inc., Japan  
SO Jpn. Kokai Tokkyo Koho, 6 pp.  
CODEN: JKXXAF  
DT Patent  
LA Japanese  
IC ICM C08G063-08  
ICS C08G063-42  
CC 35-5 (Chemistry of Synthetic High Polymers)  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 10265555	A2	19981006	JP 1997-70981	19970325
PRAI	JP 1997-70981		19970325		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 10265555	ICM	C08G063-08
	ICS	C08G063-42

AB Title polyesters with good biodegrdn., mech. properties, and storage stability are prepared by reaction of CO<sub>2</sub>H-terminated polyesters with epoxides followed by reaction of the thus obtained polyesters having low acid values with lactides. Thus, 15.0 kg poly(ethylene sebacate) was modified with 45.02 g pyromellitic dianhydride at 240° for 3 h to obtain CO<sub>2</sub>H-terminated polyester, 1 kg of which was then polymerized with 5.8 g propylene oxide in toluene at room temperature for 3 h. The obtained polyester (15.0 g) with acid value 10.1 mequiv/g was polymerized with 34.3 g

L-lactide and 0.7 g D-lactide in the presence of Sn octanoate in toluene at 170° for 7 h to give transparent and rigid polyester with weight-average mol. weight (Mw) 78,000, which was then heated at 170° and 200 kg/cm<sup>2</sup> for 2 min to give a film showing 92.5% retention of Mw after 4 wk at 35° and 80% relative humidity.

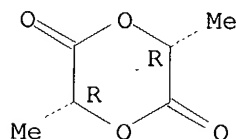
- ST lactide based polyester prepn biodegradable; carboxy terminated polyester epoxide polymn; low acid value polyester lactide polymn; polyethylene sebacate pyromellitic anhydride reaction; propylene oxide carboxy terminated polyester; storage stability lactide based polyester
- IT Polymers, preparation  
 RL: BUU (Biological use, unclassified); IMF (Industrial manufacture); BIOL (Biological study); PREP (Preparation); USES (Uses)  
 (biodegradable; preparation of lactide-based biodegradable polyesters with improved storage stability)
- IT Polyesters, preparation  
 RL: BUU (Biological use, unclassified); IMF (Industrial manufacture); BIOL (Biological study); PREP (Preparation); USES (Uses)  
 (preparation of lactide-based biodegradable polyesters with improved storage stability)
- IT 214403-97-1P, Ethylene glycol-D-lactide-L-lactide-propylene oxide-pyromellitic dianhydride-sebacic acid copolymer 214403-98-2P, Ethylene glycol-hexamethylenediol-D-lactide-L-lactide-propylene oxide-pyromellitic dianhydride-sebacic acid copolymer **214403-99-3P**, 1-Hexene oxide-D-lactide-L-lactide-propylene glycol-pyromellitic dianhydride copolymer  
 RL: BUU (Biological use, unclassified); **IMF (Industrial manufacture)**; BIOL (Biological study); **PREP (Preparation)**; USES (Uses)  
 (preparation of lactide-based biodegradable polyesters with improved storage stability)
- IT **214403-99-3P**, 1-Hexene oxide-D-lactide-L-lactide-propylene glycol-pyromellitic dianhydride copolymer  
 RL: BUU (Biological use, unclassified); **IMF (Industrial manufacture)**; BIOL (Biological study); **PREP (Preparation)**; USES (Uses)  
 (preparation of lactide-based biodegradable polyesters with improved storage stability)
- RN 214403-99-3 HCAPLUS
- CN 1H,3H-Benzo[1,2-c:4,5-c']difuran-1,3,5,7-tetrone, polymer with butyloxirane, (3R,6R)-3,6-dimethyl-1,4-dioxane-2,5-dione, (3S,6S)-3,6-dimethyl-1,4-dioxane-2,5-dione and 1,2-propanediol (9CI) (CA INDEX NAME)

CM 1

CRN 13076-17-0

CMF C6 H8 O4

Absolute stereochemistry.

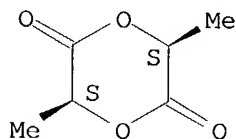


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CRN 4511-42-6

CMF C6 H8 O4

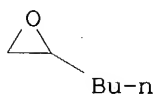
Absolute stereochemistry.



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CRN 1436-34-6

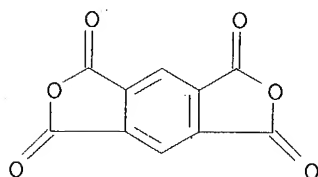
CMF C6 H12 O



CM 4

CRN 89-32-7

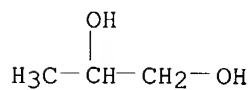
CMF C10 H2 O6



CM 5

CRN 57-55-6

CMF C3 H8 O2



L42 ANSWER 18 OF 20 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1998:197544 HCAPLUS

DN 128:275088

ED Entered STN: 06 Apr 1998

TI Polymerizable biodegradable macromers including carbonate or dioxanone linkages and their uses

KATHLEEN FULLER EIC 1700 REMSEN 4B28 571/272-2505

IN Jarrett, Peter K.; Sawhney, Amarpreet; Coury, Arthur J.; Rudowsky, Ronald S.; Powell, Michelle D.; Avila, Luis Z.; Enscoe, David J.; Goodrich, Stephen D.; Nason, William C.; Yao, Fei; Weaver, Douglas; Barman, Shikha P.; et al.

PA Focal, Inc., USA; Jarrett, Peter K.; Sawhney, Amarpreet; Coury, Arthur J.; Rudowsky, Ronald S.; Powell, Michelle D.; Avila, Luis Z.; Enscoe, David J.; Goodrich, Stephen D.; et al.

SO PCT Int. Appl., 65 pp.  
CODEN: PIXXD2

DT Patent

LA English

IC ICM C08G065-00  
ICS A61K009-00; C08G085-00

CC 63-6 (Pharmaceuticals)  
Section cross-reference(s): 35, 38

FAN.CNT 6

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9812243	A1	19980326	WO 1997-US16857	19970923
	W: AL, AU, BA, BB, BG, BR, CA, CN, CU, CZ, EE, GE, HU, IL, IS, JP, KP, KR, LC, LK, LR, LT, LV, MG, MK, MN, MX, NO, NZ, PL, RO, SG, SI, SK, TR, TT, UA, US, US, UZ, VN, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
	US 5900245	A	19990504	US 1996-710689	19960923
	AU 9745870	A1	19980414	AU 1997-45870	19970923
	AU 728281	B2	20010104		
	EP 927214	A1	19990707	EP 1997-944351	19970923
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
	BR 9711537	A	19990824	BR 1997-11537	19970923
	JP 2002514235	T2	20020514	JP 1998-514967	19970923
	CA 2266478	C	20021112	CA 1997-2266478	19970923
	ZA 9807019	A	19990604	ZA 1998-7019	19980805
	WO 9907417	A1	19990218	WO 1998-US16410	19980806
	W: AU, CA, JP				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	AU 9886955	A1	19990301	AU 1998-86955	19980806
	AU 738784	B2	20010927		
	EP 1003568	A1	20000531	EP 1998-938427	19980806
	EP 1003568	B1	20030409		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
	JP 2001513368	T2	20010904	JP 2000-507003	19980806
	AT 236666	E	20030415	AT 1998-938427	19980806
	AU 747339	B2	20020516	AU 1999-48864	19990922
PRAI	US 1996-710689	A2	19960923		
	US 1997-54849P	P	19970806		
	AU 1996-55249	A3	19960322		
	WO 1996-US3834	A2	19960322		
	WO 1997-US16857	W	19970923		
	WO 1998-US16410	W	19980806		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 9812243	ICM	C08G065-00

ICS A61K009-00; C08G085-00  
 WO 9812243 ECLA A61K009/16H6D4; A61L024/00H7; A61L024/04R;  
 A61L026/00B4; A61L031/06; A61L031/10; A61L031/14K;  
 C08G063/64; C08G063/676; A61K031/137; A61K031/404;  
 A61K031/717; A61K031/722; A61K047/34; A61L024/00H9  
 WO 9907417 ECLA A61K009/16H6D4; A61K031/137; A61K031/404; A61K031/717;  
 A61K031/722; A61K047/34; A61L024/00H9; A61L;  
 A61L024/04R; A61L026/00B4; A61L031/06; A61L031/14K;  
 C08G063/64; C08G063/66

AB The preparation and use are described of biodegradable macromers having solubility

≥1 g/L in an aqueous solution at 0-50° and containing ≥1 hydrolyzable linkage formed from carbonate or dioxanone groups, ≥1 water-soluble polymeric block, and ≥1 polymerizable group. The macromers are preferably polymerized using free radical initiators under the influence of long wavelength UV light or visible light excitation. Biodegradn. occurs at the linkages within the extension oligomers and results in fragments which are non-toxic and easily removed from the body. The macromers can be used to encapsulate cells, deliver prophylactic, therapeutic or diagnostic agents in a controlled manner, plug leaks in tissue, prevent adhesion formation after surgical procedures, temporarily protect or sep. tissue surfaces, and adhere or seal tissues together. Thus, an acrylate-terminated **terpolymer** macromer of polyethylene glycol, lactide, and trimethylene carbonate was prepared and its in vivo bioabsorption was determined in rats. The macromers were polymerized using

visible light illumination in a sealant solution containing vinylcaprolactam. The prepared

hydrogel was completely absorbed in 20 days in vivo.

ST biodegradable water sol macromer carbonate contg; dioxanone contg biodegradable macromer; prophylactic biodegradable macromer polymer; tissue adhesive biodegradable macromer polymer; drug delivery controlled biodegradable macromer polymer; sealant tissue biodegradable macromer polymer

IT Hydrogels (biodegradable macromers containing carbonate or dioxanone linkages and their uses as tissue sealants and in controlled drug delivery)

IT Macromonomers RL: BPR (Biological process); BSU (Biological study, unclassified); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); PROC (Process); USES (Uses)

(biodegradable macromers containing carbonate or dioxanone linkages and their uses as tissue sealants and in controlled drug delivery)

IT Polymers, biological studies RL: BPR (Biological process); BSU (Biological study, unclassified); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); PROC (Process); USES (Uses)

(biodegradable; biodegradable macromers containing carbonate or dioxanone linkages and their uses as tissue sealants and in controlled drug delivery)

IT Adhesives (biol. tissue; biodegradable macromers containing carbonate or dioxanone linkages and their uses as tissue sealants and in controlled drug delivery)

IT Polymer degradation (biol., in vitro; biodegradable macromers containing carbonate or dioxanone linkages and their uses as tissue sealants and in controlled drug

- delivery)
- IT Drug delivery systems  
(controlled; biodegradable macromers containing carbonate or dioxanone linkages and their uses as tissue sealants and in controlled drug delivery)
- IT Medical goods  
(drug delivery; biodegradable macromers containing carbonate or dioxanone linkages and their uses as tissue sealants and in controlled drug delivery)
- IT Cerebrospinal fluid  
(dural sealant for; biodegradable macromers containing carbonate or dioxanone linkages and their uses as tissue sealants and in controlled drug delivery)
- IT Drug delivery systems  
(hydrogels; biodegradable macromers containing carbonate or dioxanone linkages and their uses as tissue sealants and in controlled drug delivery)
- IT Drug delivery systems  
(implants, controlled; biodegradable macromers containing carbonate or dioxanone linkages and their uses as tissue sealants and in controlled drug delivery)
- IT Polymerization  
(photopolymer., in vivo; biodegradable macromers containing carbonate or dioxanone linkages and their uses as tissue sealants and in controlled drug delivery)
- IT Polyoxyalkylenes, biological studies  
Polyoxyalkylenes, biological studies  
RL: BPR (Biological process); BSU (Biological study, unclassified); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); PROC (Process); USES (Uses)  
(polycarbonate-, block, acrylate-terminated macromers; biodegradable macromers containing carbonate or dioxanone linkages and their uses as tissue sealants and in controlled drug delivery)
- IT Polyoxyalkylenes, biological studies  
Polyoxyalkylenes, biological studies  
Polyoxyalkylenes, biological studies  
RL: BPR (Biological process); BSU (Biological study, unclassified); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); PROC (Process); USES (Uses)  
(polycarbonate-polyester-, block, acrylate-terminated macromers; biodegradable macromers containing carbonate or dioxanone linkages and their uses as tissue sealants and in controlled drug delivery)
- IT Polyesters, biological studies  
Polyesters, biological studies  
Polyesters, biological studies  
RL: BPR (Biological process); BSU (Biological study, unclassified); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); PROC (Process); USES (Uses)  
(polycarbonate-polyoxyalkylene-, block, acrylate-terminated macromers; biodegradable macromers containing carbonate or dioxanone linkages and their uses as tissue sealants and in controlled drug delivery)
- IT Polyoxyalkylenes, biological studies  
Polyoxyalkylenes, biological studies  
RL: BPR (Biological process); BSU (Biological study, unclassified); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); PROC



- (Process); USES (Uses)  
 (polyester-, block, acrylate-terminated macromers; biodegradable macromers containing carbonate or dioxanone linkages and their uses as tissue sealants and in controlled drug delivery)
- IT Polycarbonates, biological studies  
 Polycarbonates, biological studies  
 Polycarbonates, biological studies  
 RL: BPR (Biological process); BSU (Biological study, unclassified); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); PROC (Process); USES (Uses)  
 (polyester-polyoxyalkylene-, block, acrylate-terminated macromers; biodegradable macromers containing carbonate or dioxanone linkages and their uses as tissue sealants and in controlled drug delivery)
- IT Lung  
 (polymerization of macromer in vivo on; biodegradable macromers containing carbonate or dioxanone linkages and their uses as tissue sealants and in controlled drug delivery)
- IT Polycarbonates, biological studies  
 Polycarbonates, biological studies  
 Polyesters, biological studies  
 Polyesters, biological studies  
 RL: BPR (Biological process); BSU (Biological study, unclassified); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); PROC (Process); USES (Uses)  
 (polyoxyalkylene-, block, acrylate-terminated macromers; biodegradable macromers containing carbonate or dioxanone linkages and their uses as tissue sealants and in controlled drug delivery)
- IT Medical goods  
 (tissue adhesives; biodegradable macromers containing carbonate or dioxanone linkages and their uses as tissue sealants and in controlled drug delivery)
- IT Biological transport  
 (uptake, in vivo; biodegradable macromers containing carbonate or dioxanone linkages and their uses as tissue sealants and in controlled drug delivery)
- IT 205327-94-2P 205453-16-3P  
 RL: BPR (Biological process); BSU (Biological study, unclassified); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); PROC (Process); USES (Uses)  
 (biodegradable macromers containing carbonate or dioxanone linkages and their uses as tissue sealants and in controlled drug delivery)
- IT 205327-93-1P 205453-15-2P  
 RL: BPR (Biological process); BSU (Biological study, unclassified); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); PROC (Process); USES (Uses)  
 (macromer; biodegradable macromers containing carbonate or dioxanone linkages and their uses as tissue sealants and in controlled drug delivery)
- IT 205453-28-7P 205537-11-7P  
 RL: **IMF (Industrial manufacture)**; PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); **PREP (Preparation)**; PROC (Process); USES (Uses)  
 (macromer; biodegradable macromers containing carbonate or dioxanone linkages and their uses as tissue sealants and in controlled drug delivery)

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD  
RE

- (1) American Cyanamid Co; EP 0258749 A 1988 HCAPLUS
- (2) Focal Inc; WO 9611671 A 1996 HCAPLUS
- (3) Hubbell, J; US 5410016 A 1995 HCAPLUS

IT 205537-11-7P

RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study);  
PREP (Preparation); PROC (Process); USES (Uses)  
(macromer; biodegradable macromers containing carbonate or dioxanone linkages and their uses as tissue sealants and in controlled drug delivery)

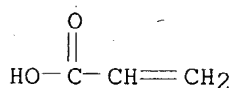
RN 205537-11-7 HCAPLUS

CN 1,4-Dioxane-2,5-dione, 3,6-dimethyl-, polymer with 1,4-dioxan-2-one and oxirane, 2-propenoate, block (9CI) (CA INDEX NAME)

CM 1

CRN 79-10-7

CMF C3 H4 O2



CM 2

CRN 205371-73-9

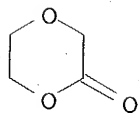
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CCI PMS

CM 3

CRN 3041-16-5

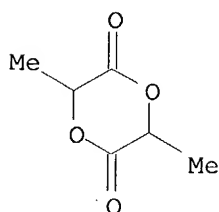
CMF C4 H6 O3



CM 4

CRN 95-96-5

CMF C6 H8 O4



CM 5

CRN 75-21-8

CMF C2 H4 O



L42 ANSWER 19 OF 20 HCAPLUS COPYRIGHT 2004 ACS on STN  
 AN 1997:761157 HCAPLUS  
 DN 127:359274  
 ED Entered STN: 06 Dec 1997  
 TI Acidic polylactic polymers  
 IN Loughman, Thomas Ciaran; Russell, Ruth Mary; Touraud, Frank Jean-Claude  
 PA Kinerton Ltd., Ire.; Loughman, Thomas Ciaran; Russell, Ruth Mary; Touraud, Franck Jean-Claude  
 SO PCT Int. Appl., 23 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA English  
 IC C08G063-08; C08G063-60; C08G063-91  
 CC 35-7 (Chemistry of Synthetic High Polymers)  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9740085	A2	19971030	WO 1997-IE31	19970422
	WO 9740085	A3	19980122		
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	RW:	GH, KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG			
	CA 2250981	AA	19971030	CA 1997-2250981	19970422
	CA 2250981	C	20020702		
	AU 9725752	A1	19971112	AU 1997-25752	19970422
	AU 727340	B2	20001207		
	EP 895517	A2	19990210	EP 1997-917392	19970422
	R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO			
	JP 11508640	T2	19990727	JP 1997-537897	19970422
	JP 3155013	B2	20010409		

NZ 332018	A	20000623	NZ 1997-332018	19970422
RU 2165942	C2	20010427	RU 1998-121127	19970422
NO 9804923	A	19981022	NO 1998-4923	19981022
US 6111033	A	20000829	US 1999-171739	19990115
JP 2001181378	A2	20010703	JP 2000-365647	20001130
JP 3335995	B2	20021021		
AU 750739	B2	20020725	AU 2001-24912	20010307
PRAI IE 1996-307	A	19960423		
JP 1997-537897	A3	19970422		
WO 1997-IE31	W	19970422		

## CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 9740085	IC	C08G063-08IC C08G063-60IC C08G063-91
US 6111033	ECLA	C08G063/08; C08G063/60; C08G063/91B
AB		Biodegradable polyesters are prepared from lactic acid and optionally other hydroxy acids or acids. The polyesters contain 4-100 carboxyl groups and have average mol. weight 1,000-200,000. Thus, a polyester was prepared from L-lactide 203.2, glycolide 81.8, and L-tartaric acid 15 g.
ST		biodegradable polyester lactic acid; lactide glycolide tartaric acid copolymer
IT		Biodegradable materials (biodegradable polyesters)
IT		Polyesters, preparation RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation) (biodegradable polyesters)
IT		Polymer degradation (biol.; biodegradable polyesters)
IT		Carboxylic acids, preparation RL: IMF (Industrial manufacture); PRP (Properties); PREP (Preparation) (polycarboxylic, hydroxy, polymers with glycolide and lactide; biodegradable polyesters)
IT		Carboxylic acids, preparation RL: IMF (Industrial manufacture); PREP (Preparation) (polycarboxylic, reaction products with polyesters; biodegradable polyesters)
IT		Epoxides RL: IMF (Industrial manufacture); PREP (Preparation) (polyepoxides, -reaction products with polyesters; biodegradable polyesters)
IT		Alcohols, preparation RL: IMF (Industrial manufacture); PREP (Preparation) (polyhydric, reaction products with lactic acid and lactide; biodegradable polyesters)
IT		Carbohydrates, preparation RL: IMF (Industrial manufacture); PREP (Preparation) (reaction products with lactic acid and lactide; biodegradable polyesters)
IT		Anhydrides RL: IMF (Industrial manufacture); PREP (Preparation) (reaction products with polyesters; biodegradable polyesters)
IT		Polymerization (ring-opening; biodegradable polyesters)
IT		198346-88-2P, D-Glucose-glycolide-L-lactide copolymer 198346-90-6P, Glycolide-L-lactide-D-lactose copolymer 198346-92-8P, Glycolide-L-lactide-D-mannitol copolymer 198346-94-0P, D-Gluconic acid-glycolide-L-lactide copolymer 198346-96-2P 198346-97-3P 198346-99-5P 198347-00-1P 198347-02-3P, Glycolide-L-lactide-D-mannitol- succinic anhydride copolymer 198347-03-4P 198347-06-7P

198347-18-1DP, reaction products with benzenetetracarboxylic dianhydride and glycolide-lactide copolymer hexadecyl ester 198347-18-1P, Glycolide-L-lactide-1,2-propanediol copolymer 198347-19-2P, 1,2,4,5-Benzenetetracarboxylic dianhydride-glycolide-L-lactide-1,2-propanediol copolymer 198573-73-8DP, reaction products with benzenetetracarboxylic dianhydride and glycolide-lactide-propanediol copolymer 198573-73-8P

RL: IMF (Industrial manufacture); PREP (Preparation)  
(biodegradable polyesters)

IT 198346-72-4P, Glycolide-L-lactide-L-tartaric acid copolymer, preparation 198346-74-6P, preparation 198346-76-8P, preparation **198346-78-0P**, preparation 198346-80-4P, Glycolide-L-lactide-DL-malic acid copolymer 198346-82-6P 198347-24-9P, Glycolic acid-glycolide-L-lactide copolymer 198347-26-1P 198347-28-3P, Glycolic acid-glycolide-cyclohexanehexacarboxylic acid-L-lactide copolymer 198347-30-7P, preparation

RL: IMF (Industrial manufacture); PRP (Properties); **PREP**  
(Preparation)

(biodegradable polyesters)

IT 126213-00-1P 198346-84-8P, preparation 198346-86-0P, preparation 198347-08-9P 198347-10-3P 198347-12-5P

RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)

(initiators for manufacture of biodegradable polyesters)

IT **198346-78-0P**, preparation

RL: IMF (Industrial manufacture); PRP (Properties); **PREP**  
(Preparation)

(biodegradable polyesters)

RN 198346-78-0 HCAPLUS

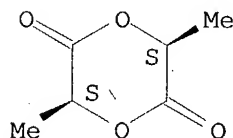
CN Butanedioic acid, 2,3-dihydroxy- (2R,3R)-, polymer with 2,2'-(1,4-butanediyl)bis[oxirane], (3S-cis)-3,6-dimethyl-1,4-dioxane-2,5-dione and 1,4-dioxane-2,5-dione (9CI) (CA INDEX NAME)

CM 1

CRN 4511-42-6

CMF C6 H8 O4

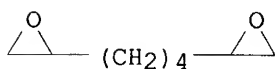
Absolute stereochemistry.



CM 2

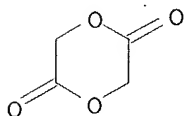
CRN 2426-07-5

CMF C8 H14 O2



CM 3

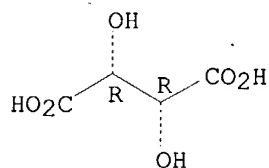
CRN 502-97-6  
CMF C4 H4 O4



CM 4

CRN 87-69-4  
CMF C4 H6 O6

Absolute stereochemistry.



L42 ANSWER 20 OF 20 HCAPLUS COPYRIGHT 2004 ACS on STN  
AN 1987:177107 HCAPLUS  
DN 106:177107  
ED Entered STN: 29 May 1987  
TI Preparation of  $\alpha$ -hydroxy acid-unsaturated epoxide copolymers  
IN Protzman, Thomas F.  
PA A. E. Staley Mfg. Co., USA  
SO U.S., 7 pp.  
CODEN: USXXAM  
DT Patent  
LA English  
IC ICM C08G063-08  
ICS C08L067-04; C08L067-06  
NCL 525412000  
CC 35-5 (Chemistry of Synthetic High Polymers)  
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 4644038	A	19870217	US 1985-781841	19850930
	CA 1244187	A1	19881101	CA 1986-516915	19860827
	EP 217660	A2	19870408	EP 1986-307460	19860929
	EP 217660	A3	19881012		
	R: AT, BE, CH, DE, FR, GB, IT, LI, LU, NL, SE				
	JP 62104836	A2	19870515	JP 1986-228532	19860929
	JP 07030171	B4	19950405		
PRAI	US 1985-781841		19850930		

CLASS

PATENT NO. CLASS PATENT FAMILY CLASSIFICATION CODES

US 4644038 ICM C08G063-08  
ICS C08L067-04; C08L067-06  
NCL 525412000

AB The title polymers are prepared by polymerizing cyclic diesters of C2-5- $\alpha$ -hydroxy acids with unsatd. epoxides at 50-250° using ring-opening polymerization catalysts in the presence of polymerization inhibitors.

Racemic lactide (32.4 g) was mixed with 0.1 mL 1.0% 2,5-diphenyl-p-benzoquinone in di-Bu phthalate, 0.75 mL 50% stannous ethylhexanoate in di-Bu phthalate, and 3.6 g glycidyl methacrylate, heated to 175° for 1 h and granulated. A solution (5 g) of 1 part of the above copolymer and 2 parts Me methacrylate was mixed with 0.25 g Bz202 and 3 drops 10% PhNMe2 in di-Bu phthalate, giving a solidified polymer insol. in CHCl3 after 2 h.

ST hydroxy acid unsatd epoxide copolymer; cyclic hydroxy acid diester copolymn; glycidyl methacrylate lactide polymn; ring opening copolymn; lactide copolymer; unsatd polyester lactide

IT Polymerization inhibitors

(radical, for preparation of hydroxy acid-unsatd. epoxide copolymers)

IT Polymerization

(ring-opening, of cyclic hydroxy acid diesters with unsatd. epoxides)

IT Polymerization catalysts

(ring-opening, tin or zinc compds., for lactides and unsatd. epoxides)

IT Polyesters, preparation

RL: PREP (Preparation)

(unsatd., preparation of, by ring-opening polymerization of cyclic

$\alpha$ -hydroxy

acid diesters and unsatd. epoxides)

IT 301-10-0 557-20-0, Diethyl zinc 1314-13-2, Zinc oxide, uses and miscellaneous 7772-99-8, uses and miscellaneous

RL: CAT (Catalyst use); USES (Uses)

(catalysts, ring-opening, for preparation of hydroxy acid-unsatd. epoxide copolymers)

IT 108057-72-3P, Glycidyl methacrylate-lactide-methyl methacrylate copolymer

RL: SPN (Synthetic preparation); PREP (Preparation)

(crosslinked, preparation of)

IT 108057-71-2P, Glycidyl methacrylate-lactide copolymer

RL: PREP (Preparation)

(preparation of, by ring-opening polymerization)

IT 106-51-4, uses and miscellaneous 130-15-4, 1,4-Naphthoquinone 844-51-9

RL: USES (Uses)

(radical polymerization inhibitor, for preparation of hydroxy acid-unsatd.

epoxide

copolymers)

IT 108057-72-3P, Glycidyl methacrylate-lactide-methyl methacrylate copolymer

RL: SPN (Synthetic preparation); PREP (Preparation)

(crosslinked, preparation of)

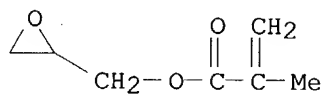
RN 108057-72-3 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, methyl ester, polymer with 3,6-dimethyl-1,4-dioxane-2,5-dione and oxiranylmethyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 106-91-2

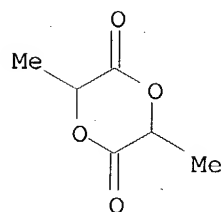
CMF C7 H10 O3



CM 2

CRN 95-96-5

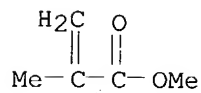
CMF C6 H8 O4



CM 3

CRN 80-62-6

CMF C5 H8 O2



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